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ABSTRACT

This is a curriculum guide for a course designed to enable students to master the necessary basic mathematics and business-related mathematics skills needed for entry into office and business occupations. The guide includes 11 instructional units: (1) "Fundamental Math Skills"; (2) "Fractions"; (3) "Decimals"; (4) "Percentages and Ratios"; (5) "Banking and Money Records"; (6) "Payroll and Taxes"; (7) "Interest"; (8) "Retailing"; (9) "Inventory and Depreciation"; (10) "Insurance and Investments"; and (11) "Measurements, Statistics, and Reports." Each unit outlines competencies, objectives, methodology, interest approaches, subject matter content and learning activities. Transparencies, tests, and supplementary materials are also given. A list of members of the writing team, a course description, a rationale, and a suggested time schedule for the course are provided. An annotated bibliography of business math instructional resources is appended. (YP)

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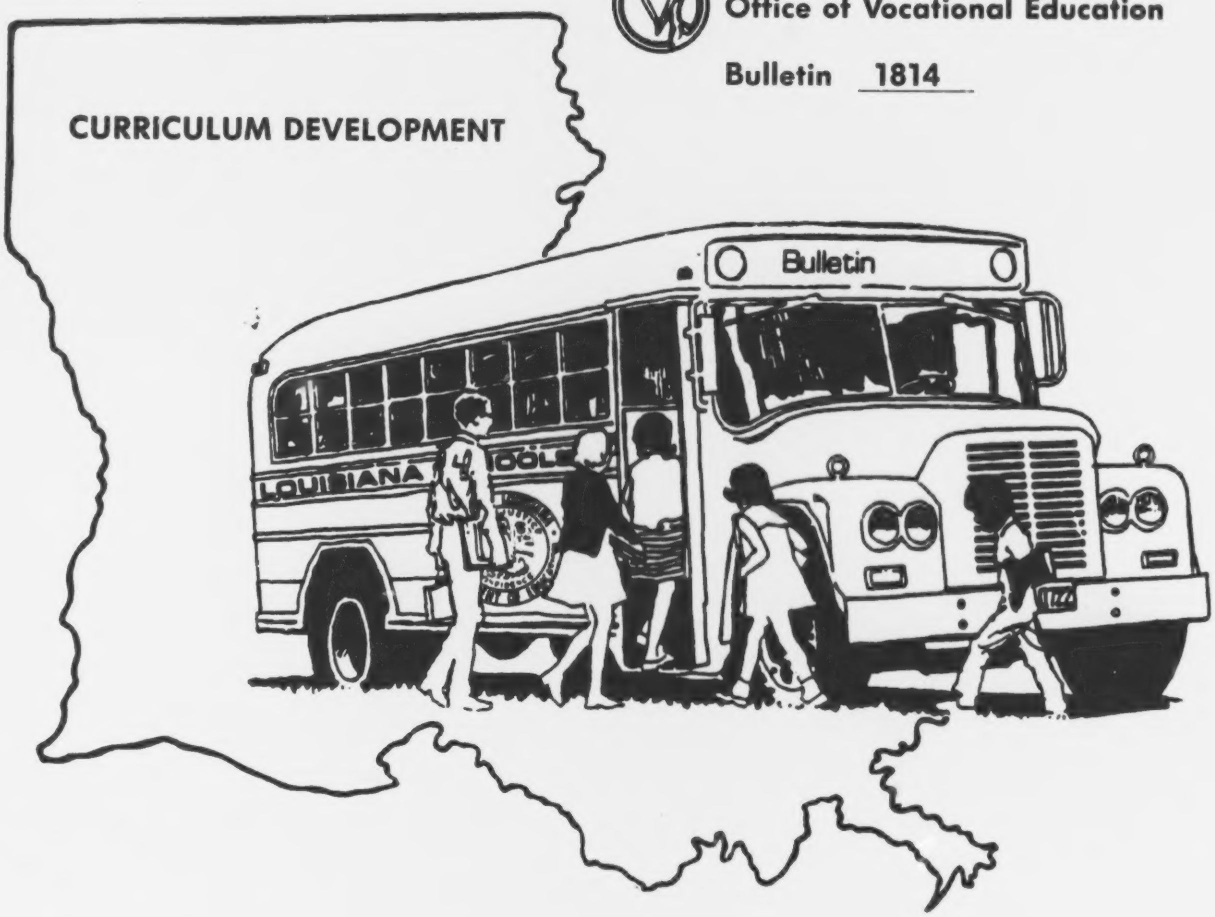
COMPETENCY-BASED BUSINESS MATH

1987

Office of Vocational Education

Bulletin 1814



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STATE OF LOUISIANA

DEPARTMENT OF EDUCATION

BULLETIN NO. 1814
COMPETENCY-BASED BUSINESS MATH

Issued by

Office of Vocational Education

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Assistant Superintendent

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State Superintendent

1987

FOREWORD

This Curriculum Guide, Competency-Based Business Math, was produced as a result of a project funded by the Louisiana State Department of Education to Southeastern Louisiana University. These units represent the concerted efforts of selected Business Education teachers in the State of Louisiana.

The instructional units included in this curriculum guide have been written to aid teachers in preparing students for employment in the business and office field. This guide lists specific objectives that, when achieved, will enable the student to obtain the necessary basic math and business math skills for entry-level employment.

Thomas G. Clausen

Thomas G. Clausen, Ph.D.
State Superintendent of Education

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This publication represents the cooperative efforts of personnel in the Office Administration/Business Education Department, Southeastern Louisiana University, and the Business Education Section in the Office of Vocational Education, Louisiana State Department of Education. Special recognition goes to Dr. Donna H. Redmann, who served as Project Director in the development of the Competency-Based Business Math Curriculum Guide. A special commendation goes to the members of the writing team, who worked diligently to make the publication a reality. Also, particular recognition is due Ms. Barbara Jane Russell Dragg, who was responsible for typing the document throughout the various phases of revision. Finally, special thanks go to Dr. Bobbye J. Davis, who graciously volunteered her services as proofreader for the project.

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COURSE DESCRIPTION

Business Math is a course designed to enable students to master the necessary basic math and business-related math skills needed for office and business occupations. The course includes units in fundamental math skills with business applications and units using business application of math to cover the following topics: banking, money records, payroll, taxes, interest, retailing, inventory, depreciation, insurance, investment, measurements, statistics, and reports.

Prerequisites: None

Suggested Grade Level: 10-12

Total Number of Weeks: 36

Units of Credit: 1

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RATIONALE

Employers have repeatedly voiced the need for basic skills as being vital for almost every job. Leaders in business and industry have also voiced the need for academic skills training as an integral part of vocational education. In response to this need, one of the major purposes of the Carl D. Perkins Vocational Education Act is to "improve academic foundations of vocational students...in terms of employment or occupational goals" (Federal Register, Aug. 16, 1985). The law encourages research and curriculum development that is designed to teach academic skills (such as reading, writing, mathematics, and sciences) through practical applications (Sec. 251, (11); Sec. 312 (b) (2)).

In education, the focus has been on the improvement of basic academic competencies in communications, computations, and science which are considered fundamental to preparing students for further learning as well as for employment. In our rapidly changing economy, students who lack these basic skills will be unable to compete in and/or adjust to the shifting job market. The concern for improvement in basic skills has led many states to change their high school graduation requirements to include an increase in the number of academic courses. In the area of mathematics, the State of Louisiana now requires three units. Business Math may be used as the third required unit.

While mastery of fundamental skills is essential for everyone, vocational educators are faced with diversity of student ability, interest, and goals. Vocational teachers have made a concerted effort to address this diversity among students. Competency-based education is an approach that has proven to be successful in meeting the needs of this diverse population. The strength of this individualized instructional approach is the mastery of identified competencies for successful entry into the world of work. This Business Math Curriculum Guide is based on a survey of office employees and employers/supervisors in the State of Louisiana.

Units presented in this guide are designed to provide students with the necessary fundamental math skills and the business-related math skills needed for office and business occupations. The first four units cover a review of basic math skills with practical business application. The remaining units build upon the first units and stress the business-related math job skills. Most of the instruction is focused on business application with some personal use. Each unit provides a list of competencies, performance objectives, learning activities, suggested subject matter, content outline, methodology, sample tests and learning activities, ideas for bulletin boards, and a list of equipment and supplies. A list of supplementary material such as texts, simulations, practice sets, films, transparencies, and free literature is included for each unit. An annotation of commercially prepared instructional material is provided at the end of the guide.

SUGGESTED TIME SCHEDULES

		Weeks
I.	FUNDAMENTAL MATH SKILLS	2
II.	FRACTIONS	3
III.	DECIMALS	2
IV.	PERCENTAGES AND RATIOS	3
V.	BANKING AND MONEY RECORDS	4
VI.	PAYROLL AND TAXES	3
VII.	INTEREST	3
VIII.	RETAILING	4
IX.	INVENTORY AND DEPRECIATION	4
X.	INSURANCE AND INVESTMENTS	4
XI.	MEASUREMENTS, STATISTICS, AND REPORTS	4

UNIT I

FUNDAMENTAL MATH SKILLS

INTRODUCTION

We are in an information age in which more data is produced than ever before. The quantity of information available and the ability to process this information is astounding. The personal ability to understand and to use this information is very necessary. The basic math skills serve as the foundation for the understanding of this information age.

This unit will provide a review of fundamental math skills and their application to the business world. Successful completion of the unit will provide the learner with the basic math skills needed to progress to business math and its application.

COMPETENCIES

1. Read and write whole numbers.
2. Round off whole numbers to nearest multiple of ten.
3. Add whole numbers.
4. Subtract whole numbers.
5. Multiply whole numbers.
6. Divide whole numbers.
7. Average numbers.
8. Mentally estimate the answers to given problems.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Demonstrate correct techniques for reading and writing numbers.
2. Correctly apply fundamental skills of addition, subtraction, multiplication, and division to solve business-related problems.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to identify correctly the terminology for reading and writing whole numbers on the unit test with 75 percent accuracy.

1.2. Given a list of ten numbers, the student will express each number in words using correct punctuation with a 100 percent accuracy.

1.3. Given a list of ten numbers verbally, the student will write each number in digits using correct punctuation with 100 percent accuracy.

1.4. Given five blank checks, the student will write in the correct dollar amounts using the value given for each check with 100 percent accuracy.

2.1. Given a list of ten numbers, the student will round off each whole number to the nearest ten, the nearest hundred, and the nearest thousand with 100 percent accuracy.

3.1. The student will be able to identify correctly the addition terminology on the unit test with 75 percent accuracy.

3.2. Given 15 addition problems, the student will be able to complete all problems with 100 percent accuracy.

3.3. The student will be able to complete an applied business problem using addition of whole numbers with 100 percent accuracy.

4.1. The student will be able to identify correctly the subtraction terminology on the unit test with 75 percent accuracy.

4.2. Given 20 subtraction problems, the student will be able to complete all problems with 100 percent accuracy.

4.3. The student will be able to complete an applied business problem using subtraction of whole numbers with 100 percent accuracy.

5.1. The student will be able to identify correctly the multiplication terminology on the unit test with 75 percent accuracy.

5.2. Given ten multiplication problems, the student will complete these problems with 80 percent accuracy.

5.3. The student will be able to multiply quickly and accurately by using a multiplication shortcut when multiplying by 10, 100, 1,000, etc., by completing ten such problems in five minutes with 100 percent accuracy.

5.4. The student will be able to complete an applied business problem using muitiplication of whole numbers with 100 percent accuracy.

6.1. The student will be able to identify correctly the division terminology on the unit test with 75 percent accuracy.

6.2. Given ten division problems, the student will be able to complete these problems with 80 percent accuracy.

6.3. The student will be able to divide quickly and accurately by using a division shortcut when dividing by 10, 100, 1,000, etc. by completing 10 such problems in five minutes with 100 percent accuracy.

6.4. The student will be able to complete an applied business problem using division with 100 percent accuracy.

7.1. On a unit test, the student will be able to average four whole number problems with 75 percent accuracy.

8.1. On the unit test, the student will be able to estimate an answer to a problem and then work the problem for a comparison answer.

METHODOLOGY

This unit reviews and reinforces the student's basic skills in reading and writing whole numbers, addition, subtraction, multiplication and division of whole numbers. Activities include practice of basic problems and related business problems so the student can see practical application of such skills. These activities provide the foundation for progress in the course.

Textbooks, business forms and problems, visual aids, games, and teaching transparencies will be used in the unit. The accuracy levels assigned in the specific performance objectives may be adjusted to fit the local school standards or student ability. A unit pretest and posttest are provided and can be found in Appendix B. The posttest is divided into sections and can be used as either one test or as section tests.

SUGGESTED INTEREST APPROACHES

Some ideas for teaching the fundamental math skills are listed and/or explained below.

Addition and Subtraction:

1. Prepare bulletin boards illustrating neatness and accuracy in math and the costly effects of mistakes.

2. In single-digit addition, students should be encouraged to find as many combinations of ten as possible for quick adding.

i.e. 3 3 + 7 can be combined for 10
1
9 1 + 9 can be combined for 10 to equal 20
7
4 and then 4 is added to this total = 24.
24

3. Games and Oral Drills
   a. Put numbers on the board and point to different numbers and have students add or subtract.
   b. Orally give students numbers and see who can add the numbers first.
   c. Have students fill in missing blanks in equations, such as 3 + N = 7.
   d. Chain-adding: Give the students two numbers to add and then write down the total as the third addend. Add the second and third addends and then write and give total for the fourth addend. Do this until six figures are written down. Total all figures for the grand total. A way to check for accuracy is to multiply the fifth figure by four.

i.e. 25
13
38 Check: 89 x 4 = 356
51
89
140
356

4. Stress neatness of figures and proper alignment.

Division and Multiplication:

1. A simple rule to remember is that when the divisor is greater than 1, the quotient is smaller that the dividend. Or when the divisor is less than 1, the quotient is bigger than the dividend.

2. A good exercise would be to review the multiplication tables.

3. Show the student the multiplication shortcut of multiplying by 10's, 100's, 1,000's, etc. The product has the same number of zeroes as the multiplier does, i.e., 11 x 10 = 110 has 1 zero

4. The student can use the shortcut of division by multiples of 10 by taking the number of zeroes off the dividend as is in the divisor, i.e., 9800 divided by 100 = 98 with 2 zeroes taken off.

UNIT I

FUNDAMENTAL MATH SKILLS

I. Read and Write Whole Numbers

- A. Terminology
  - 1. Place Value
  - 2. Whole Numbers
  - 3. Digits
- B. Write Whole Numbers in Words
- C. Write Whole Numbers in Digits

II. Rounding Off Whole Numbers

- A. Identify Digits to be Rounded
- B. Rounding Whole Numbers to Indicated Position

III. Addition

- A. Terminology
  - 1. Addition
  - 2. Addend
  - 3. Sum
  - 4. Total
  - 5. Carrying a Number
- B. Accuracy of Addition
  - 1. Correct Alignment
  - 2. Reverse Addition
  - 3. Horizontal Addition
- C. Business Problem Application

IV. Subtraction of Whole Numbers

- A. Terminology
  - 1. Subtraction
  - 2. Minuend
  - 3. Subtrahend
  - 4. Difference
  - 5. Borrowing
- B. Accuracy of Subtraction
- C. Business Problem Application

V. Multiplication

- A. Terminology
  - 1. Multiplicand
  - 2. Multiplier
  - 3. Product
  - 4. Factors
- B. Accuracy of Multiplication
- C. Multiplication Shortcuts using 10's, 100's, 1,000's, etc.
- D. Business Problem Application

VI. Division

- A. Terminology
    - 1. Divisor
    - 2. Dividend
    - 3. Quotient
    - 4. Remainder
- B. Accuracy of Division
- C. Division Shortcuts using 10's, 100's, 1,000's, etc.
- D. Business Problem Application

VII. Average Numbers

VIII. Mental Estimation

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to identify correctly the terminology for reading and writing whole numbers on the unit test with 75 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: whole numbers place value digits	1. View transparency on what are whole numbers and how to read whole numbers using our decimal number system. (Appendix A, 1.1A) 2. Complete exercise on digit value of values of numbers. (Appendix A, 1.1B)

1.2. Given a list of ten numbers, the student will express each number in words using correct punctuation with 100 percent accuracy.

Subject Matter Content	Learning Activities
Spelling common numbers Using correct punctuation commas hyphens	1. View transparency on spelling words. (Appendix A, 1.2) 2. View transparency on using hyphens and commas. (Appendix A, 1.2)

3. Complete exercises on writing whole numbers in words as provided by instructor.

1.3. Given a list of ten numbers verbally, the student will write each number in number form using correct punctuation with 100 percent accuracy.

Subject Matter Content
Writing whole numbers in digits

Learning Activities
1. Review place value of whole numbers. (Appendix A, 1.1A)
2. Complete exercises on writing whole numbers in digits as provided by instructor.

1.4. Given five blank checks, the student will write in the correct dollar amounts using the value given for each check with 100 percent accuracy.

Subject Matter Content
Writing dollar amount on checks

Learning Activities
1. Review transparencies on writing whole numbers. (Appendix A, 1.1A and Appendix A, 1.2)
2. View transparency on check writing. (Appendix A, 1.4)
3. Complete exercise on check writing. Instructor will provide blank checks.

2.1. Given a list of ten numbers, the student will round off each whole number to the nearest ten, the nearest hundred, and the nearest thousand with 100 percent accuracy.

Subject Matter Content
Rules for rounding off whole numbers
  To the nearest indicated digit method

Learning Activities
1. Review transparency on reading whole numbers. (Appendix A, 1.1A)

All-the-way method	2. View transparency on rounding off whole numbers. (Appendix A, 2.1) 3. Complete exercises on rounding off numbers as provided by teacher.

3.1. The student will be able to identify correctly the addition terminology on the unit test with 75 percent accuracy.

Subject Matter Content	Learning Activities
Terminology Addition Addend Sum Total Carrying a Number	1. View teacher's presentation on addition terminology. 2. Complete exercise on addition of whole numbers as supplied by instructor. 3. View bulletin board display on accuracy and neatness. (Appendix D) 4. View teacher's presentation on carrying a number.

3.2. Given 15 addition problems, the student will be able to complete all problems with 100 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy and figure alignment Reverse addition Horizontal addition	1. View the teacher's presentation on aids to faster addition. 2. View teacher's presentation on addition and correct alignment of figures. 3. View transparency on reverse addition and horizontal addition. (Appendix A, 3.2) 4. Complete 15 test problems as provided by instructor.

3.3. The student will be able to complete an applied business problem using addition of whole numbers with 100 percent accuracy.

Subject Matter Content	Learning Activity
Applied business problem.	1. Observe as teacher works sample business problems. (Appendix A, 3.3) 2. Work business problems as provided by instructor.

4.1. The student will be able to identify correctly the subtraction terminology on the unit test with 75 percent accuracy.

Subject Matter Content	Learning Activities
Terminology Subtraction Minuend Subtrahend Difference Borrowing	1. View teacher's presentation on terminology. (Appendix A, 4.1A) 2. Complete worksheet pages as selected by instructor.

4.2. Given 20 subtraction problems, the student will be able to complete all problems with 100 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy Add subtrahend and difference	1. View teacher's presentation on ways to check subtraction. 2. Complete 20 subtraction test problems as provided by instructor.

4.3. The student will be able to complete an applied business problem with 100 percent accuracy.

Subject Matter Content	Learning Activities
Applied business problem Gross and Net	1. Complete sample problem. (Appendix A, 4.3)

5.1. The student will be able to identify correctly the multiplication terminology on the unit test with 75 accuracy.

Subject Matter Content	Learning Activities
Terminology Multiplicand Multiplier Factors Multiplication of more complex problems	1. View teacher's presentation on multiplication. 2. Complete exercises as selected by instructor.

5.2. Given ten multiplication problems, the student will complete these problems with 80 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy Division Reverse multiplication	1. View teacher's presentation on checking whole number multiplication. 2. Complete test of 10 multiplication problems as provided by instructor.

5.3. The student will be able to multiply quickly and accurately by using a multiplication shortcut when multiplying by 10, 100, 1,000, etc., by completing ten such problems in five minutes with 100 percent accuracy.

Subject Matter Content	Learning Activities
Multiplying by 10, 100, 1,000, etc.	1. View transparency on multiplication by multiples of ten. (Appendix A, 5.3) 2. Complete shortcut multiplication test. (Appendix A, 5.3A)

5.4. The student will be able to complete an applied business problem using multiplication of whole numbers with 100 percent accuracy.

Subject Matter Content	Learning Activities
General business problem. Quantity times cost for total cost	1. View sample problem as presented by teacher. 2. Complete business problems as selected by instructor.

6.1. The student will be able to correctly identify the division terminology on the unit test with 75 percent accuracy.

Subject Matter Content	Learning Activities
Terminology Divisor Dividend Quotient Remainder	1. View teacher's presentation on division terminology. 2. Complete workbook problems as selected by instructor.

6.2. Given ten division problems, the student will be able to complete these problems with 80 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy Multiplication	1. View teacher's presentation on checking division. 2. Complete ten division problems as provided by instructor.

6.3. The student will be able to divide quickly and accurately by 10, 100, 1,000, etc., by completing ten such problems in five minutes with 100 percent accuracy.

Subject Matter Content	Learning Activities
Dividing by 10, 100, 1,000, etc.	1. View transparency on shortcut division. (Appendix A, 6.3)

2. Complete ten sample problems as given by instructor.

6.4. The student will be able to complete an applied business problem using division with 100 percent accuracy.

Subject Matter Content	Learning Activity
General business problem	1. Complete sample business problem. (Appendix A, 6.4)

7.1. On the unit test, the student will be able to average four whole number problems with 75 percent accuracy.

Subject Matter	Learning Activities
Averaging of whole numbers (mean)	1. View teacher's presentation on concept of averaging (mean). 2. Complete a workbook sheet or problem sheet as selected by the instructor.

8.1. On the unit test, the student will be able to estimate an answer to a problem and then work the problem for a comparison answer.

Subject Matter	Learning Activities
Mental Estimation: Round numbers to nearest tens or hundreds for a quick estimation for addition, subtraction, multiplication, and division of whole numbers	1. Review shortcut methods by multiples of tens for division and multiplication. (Appendix A, 5.3 and 6.3) 2. Estimate simple problems involving all four basic operations and then work the problems for comparison answer. The problems will be selected by the instructor.

APPENDIX A

TRANSPARENCY FOR 1.1A

READING WHOLE NUMBERS

Whole numbers are formed from combining the following digits or symbols:

0, 1, 2, 3, 4, 5, 6, 7, 8, and 9

Our numbering system is called the decimal or base-ten system. The word "digit" comes from the Latin word for finger, because people counted on their ten fingers. Decimal means based on the number 10.

Each digit has a place value. The position of the digit signifies its meaning, according to the place-value table listed below.

Place Value of Whole Numbers

Billions				Millions				Thousands				Units			
HUNDRED BILLIONS	TEN BILLIONS	BILLIONS		HUNDRED MILLIONS	TEN MILLIONS	MILLIONS		HUNDRED THOUSANDS	TEN THOUSANDS	THOUSANDS		HUNDREDS	TENS	ONES	decimal point
9	6	3	,	4	2	4	,	7	0	5	,	1	8	3	.

Commas are used between each group of three numbers to the left of the decimal point. The commas break the number into thousands, millions, billions, etc. Numbers beyond billions are called trillions, quadrillions, quintillions, and so on.

The digit in the ten billion place is 6.
The digit in the hundred million place is 4.
The digit in the one place is 3.
The digit in the thousands place is 5.

APPENDIX A

LEARNING ACTIVITY FOR 1.1B

READING WHOLE NUMBERS
(Digit Value of Numbers)

Exercise A: In the number 927,436,851

1. The digit in the hundred thousands place is _____.
2. The digit in the units place is ______.
3. The digit in the ten millions place is _____.
4. The digit in the hundreds place is ______.
5. The digit in the hundred millions place is______.

Exercise B: In the number 720,681,453

1. The digit in the ______________ place is 4.
2. The digit in the ______________ place is 0
3. The digit in the ______________ place is 8.
4. The digit in the ______________ place is 5.
5. The digit in the ______________ place is 1.

KEY:

Exercise A	Exercise B
1. 4	1. hundreds
2. 1	2. millions
3. 2	3. ten thousands
4. 8	4. tens
5. 9	5. thousands

APPENDIX A

TRANSPARENCY FOR 1.2A

WRITING WHOLE NUMBERS IN WORDS

Spelling Common Numbers

0 = zero
1 = one
2 = two
3 = three
4 = four
5 = five
6 = six
7 = seven
8 = eight
9 = nine

10 = ten
11 = eleven
12 = twelve
13 = thirteen
14 = fourteen
15 = fifteen
16 = sixteen
17 = seventeen
18 = eighteen
19 = nineteen

20 = twenty
30 = thirty
40 = forty
50 = fifty
60 = sixty
70 = seventy
80 = eighty
90 = ninety

100 = hundred
1,000 = thousand
1,000,000 = million
1,000,000,000 = billion
1,000,000,000,000 = trillion

Using Hyphens

Numbers 21 through 99 are written with hyphens.

21 = twenty-one
22 = twenty-two
43 = forty-three
67 = sixty-seven
99 = ninety-nine

Using Commas

Commas are used just as they appear in digit form. They are used to separate the digits into units, thousands, millions, etc.

4,578,285 = Four million, five hundred seventy-eight, two hundred eighty-five

APPENDIX A

TRANSPARENCY FOR 1.4A

CHECK WRITING

19

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PAY TO THE ORDER OF $

DOLLARS

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19

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PAY TO THE ORDER OF $

DOLLARS

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APPENDIX A

TRANSPARENCY FOR 2.1

ROUNDING OFF WHOLE NUMBERS

A. Steps for Rounding Off Numbers to the Nearest Indicated Value.

1. Locate the digit or place value to be rounded off. It is identified by the column name.
2. If the first digit to the right of the value place being rounded off is less than 5 (0, 1, 2, 3, 4), the value place being rounded off stays the same. If the first digit to the right of the value place being rounded off is 5 or more (5, 6, 7, 8, 9), add 1 to the place value being rounded off.
3. Change all of the digits to the right of the place value being rounded off to zeros.

Example 1. 78,258 to the nearest thousand.

Step 1 Digit to be rounded.
↓ ↓ Decision-making digit.
78,258

Step 2 Since 2 is less than 5, 8 remains the same.

Step 3 Change 258 to zeros. 78,258 = 78,000

Example 2. 341,853 to the nearest thousand.

Step 1 Digit to be rounded.
↓ ↓ Decision-making digit.
341,853

Step 2 Since 8 is more than 5, add 1 to the digit to be rounded.
342,853

Step 3 Change 853 to zeros. 341,853 = 342,000

B. Rounding all the way.
Means that after rounding we have only one nonzero digit remaining.
Example 9,295 = 9,000
0,895 = 10,000

APPENDIX A

TRANSPARENCY FOR 3.2A

REVERSE & HORIZONTAL ADDITION

Reverse Addition

To do reverse addition, add from the top down and then add from the bottom of addends up. The two totals should be the same.

$$\begin{array}{rl} \underline{1{,}115} & \text{Total} \\ 171 & \\ 234 & \text{Addition} \\ \underline{710} & \\ 1{,}115 & \text{Total} \end{array}$$

Horizontal Addition

a. Add numbers horizontally.
b. Add each column vertically.
c. Add horizontal column total vertically.
d. Add vertical column totals horizontally.
e. The total of columns "c" and "d" should be the same.

$$\begin{array}{cccccccccc} & \multicolumn{8}{l}{a \longrightarrow} & \\ b\downarrow & 3 & + & 1 & + & 2 & = & 6 & c\downarrow \\ & 4 & + & 1 & + & 4 & = & 9 & \\ & \underline{5} & + & \underline{2} & + & \underline{9} & = & \underline{16} & \\ & 12 & & 4 & & 15 & & 31 & e \\ & \multicolumn{8}{l}{d \longrightarrow} & \end{array}$$

APPENDIX A

LEARNING ACTIVITY FOR 3.3

SAMPLE BUSINESS PROBLEMS

1. The Beta Club wants to sell cards to earn money. The club ordered 200 boxes initially during the year. They bought more boxes as follows:

   75, 130, 80, & 90

   What was the total number of boxes available for sale?

2 . Piece-rate work production. (Total of 5 days)

	M	T	W	T	F		Total for Week per Employee
Joe	145	316	40	75	100	=	______
Dee	117	104	70	141	200	=	______
Sue	170	170	170	170	170	=	______
Ted	30	45	71	33	45	=	______
Daily Total:	____	____	____	____	____		______ Total for Week for Company

a. Add across to find the total number of pieces each employee produced for the week.

b. Add down each column to find how many pieces were produced each day by all employees.

c. To find the total number of units produced for the week by all employees, total vertically and then total horizontally. These two totals should be the same.

KEY

Problem 1:

200
75
130
80
90
575 boxes

Problem 2:

145	316	40	75	100	=	676
117	104	70	141	200	=	632
170	170	170	170	170	=	850
30	45	71	33	45	=	224
462	635	351	419	515		2,382

APPENDIX A

LEARNING ACTIVITY FOR 4.3

BUSINESS APPLICATION PROBLEM FOR SUBTRACTION

Gross (minuend) is an amount before deductions (subtrahend) is subtracted to give a net (difference) amount.

EXAMPLE:

A box weighs 117 pounds (gross) before 30 pounds (deduction) are sold. What is the net weight (difference)?

KEY

$$\begin{array}{rl} & 117 \text{ (Gross)} \\ - & \underline{30} \\ & 87 \text{ (net) lbs.} \end{array}$$

APPENDIX A

TRANSPARENCY FOR 5.3

MULTIPLICATION SHORTCUTS WHEN MULTIPLYING BY 10'S, 100'S, AND 1,000'S

To multiply by 10's, 100's, or 1,000's, count the number of zeros in the multiplier. The product has the same number of zeros as the multiplier.

Examples:

11 X 10 = 110	The multiplier has one zero and so does the product.
137 x 1,000 = 137,000	There are three zeros in the multiplier and the product.

APPENDIX A

TRANSPARENCY FOR 6.3

DIVISION SHORTCUT WHEN DIVIDING BY 10'S, 100'S, AND 1,000'S

When dividing by 10's, 100's, and 1,000's, take the same number of zeros off the dividend as in the divisor.

Examples:

89,700 divided by 100 = 897	The divisor has two zeros and so two zeros are taken off the dividend to serve as the quotient.
430 divided by 10 = 43	The divisor has one zero and so one zero is taken off the dividend to serve as the quotient.

APPENDIX A

LEARNING ACTIVITY FOR 6.4

BUSINESS APPLICATION PROBLEMS

The following are sample business problems.

1. If a store sells four cans for $4, how much is each can?
2. If a box weighs 250 pounds and contains 10 items, how much does each item weigh?
3. A father has $10,000 to give to his five children. How much does each child receive?
4. An employee produces 200 pieces of goods in eight hours. How much does he produce in each hour?

KEY

1. $1.00
2. 25 pounds
3. $2,000
4. 25 pieces

APPENDIX B

UNIT I

PRETEST

A. Write the following numbers as you would read them with commas and hyphens inserted where necessary.

1. 1,679
2. 44
3. 110,978

B. Write the following numbers in digits with commas inserted where necessary.

1. Seventeen
2. One million, two hundred forty-seven thousand, three hundred twenty-one.
3. Nine hundred seventy-six

C. Round off the following numbers to the place so indicated.

1. 563,000 to nearest hundred thousand.________________
2. 567,943 to nearest hundred.__________________
3. 1,349,567 to nearest ten thousand______________

D. Write the correct terminology in the blanks for the following problems.

1. $\begin{array}{r} 21 \\ +\ \underline{10} \\ 31 \end{array}$ $\begin{array}{l} a\_\_\_\_\_\_\_\_\_\_ \\ b\_\_\_\_\_\_\_\_\_\_ \\ c\_\_\_\_\_\_\_\_\_\_ \end{array}$

2. $\begin{array}{r} 11 \\ \times\ \underline{10} \\ 110 \end{array}$ $\begin{array}{l} a\_\_\_\_\_\_\_\_ \\ b\_\_\_\_\_\_\_\_ \\ c\_\_\_\_\_\_ \end{array}$

E. Complete the following problems.

1. $\begin{array}{r} 439 \\ \times\ \underline{72} \end{array}$

2. $\begin{array}{r} 97{,}000 \\ \underline{\times\ 47} \end{array}$

3. 20 divided by 5____

4. $\begin{array}{r} 94 \\ +\ \underline{49} \end{array}$

5. $\begin{array}{r} 11 \\ -\ \underline{11} \end{array}$

F. Find the average of the following series of numbers.

1. 91, 79, 11

APPENDIX B

UNIT I

PRETEST KEY

A. 1. One thousand, six hundred seventy-nine
2. Forty-four
3. One hundred ten thousand, nine hundred seventy-eight
B. 1. 17
2. 1,247,321
3. 976
C. 1. 600,000
2. 567,900
3. 1,350,000
D. 1. a. addend, b. addend, c. sum
2. a. multiplicand, b. multiplier c. product
E. 1. 31,608 2. 4,559,000 3. 4 4. 143 5. 0
F. 1. 60

APPENDIX B

UNIT I TEST

A. Write the following numbers as you would read them with commas and hyphens inserted where necessary.

1. 32

2. 651,408

3. 211

4. 1,777,190

5. 5,000

6. 7

7. 232,406,929,044

8. 6,000,403

9. 14

10. 10,685

B. Write the following numbers in digits with commas inserted where necessary.

1. Seventy-eight 1. _____

2. Three million, five hundred thirty-one thousand, six 2. _____

3. Nine thousand, forty-two 3. _____

4. Fifteen 4. _____

5. One trillion, nine hundred fifty million, six hundred thirty-one thousand, four hundred twenty-seven 5. ____

6. Three hundred sixty-one 6. ____

7. Five hundred ninety-one thousand 7. ____

8. Twenty-one million 8. ____

9. Four thousand, two hundred eighty-five 9. ____

10. Six hundred seventy-two million, one hundred fourteen thousand, five hundred forty. 10. ____

C. Round off the following numbers to the place value indicated.

1. 21,650 to the nearest thousand. ________
2. 543,781,186 to the nearest ten million. ________
3. 3,671 to the nearest ten. ________
4. 956,901 to the nearest hundred. ________
5. $3,543,921 to the nearest ten thousand. ________
6. $73,783 to the nearest hundred. ________
7. 2,887,419,987 to the nearest million. ________
8. 43 to the nearest ten. ________

D. Round the following numbers all the way.

1. 1,780 ________
2. 160 ________

E. Write the correct terminology in the blanks for the following four problems.

1. 10 a______________
+10 b______________
20 c______________

2. 30 a______________
-25 b______________
5 c______________

3. 10 a____________
x 4 b____________
40 c____________

4. c__________
2 R 6 d______
15 | 36 b__________
a________ 30
6

F. Complete the following problems and check for accuracy.

1. 17
+39

2. 38
+94

3. 101
+ 11

4. 99
-87

5. 39
- 7

6. 72
-29

7. 19
x 3

8. 743
x 21

9. 70,011
x 12

10. 14 x 10 =

11. 104 x 10,000 =

12.
17 36

13.
41 100

14.
53 701

15. 170 divided by 10 =

16. 4300 divided by 100 =

G. Find the average of the following series of numbers.

17. 10
19
74

18. 91
7
11
59

H. Using horizontal and vertical addition, complete the following problem.

10 + 7 + 1 = d______
12 + 10 + 9 = e______
13 + 11 + 7 = f______
a_____ + b_____ + c_____ = g______

UNIT I TEST ANSWER KEY

Section A:

1. Thirty-two
2. Six hundred fifty-one thousand, four hundred eight
3. Two hundred eleven
4. One million, seven hundred seventy-seven thousand, one hundred ninety
5. Five thousand
6. Seven
7. Two hundred thirty-two billion, four hundred six million, nine hundred twenty-nine thousand, forty-four
8. Six million, four hundred three
9. Fourteen
10. Ten thousand, six hundred eighty-five

Section B:

1. 78
2. 3,531,006
3. 9,042
4. 15
5. 1,950,631,427
6. 361
7. 591,000
8. 21,000,000
9. 4,285
10. 672,114,540

Section C:

1. 22,000
2. 544,000,000
3. 3,670
4. 965,900
5. $3,543,000
6. $73,800
7. 2,887,000,000
8. 40

Section D:

1. 2,000
2. 200

Section E:

1. addend, addend, sum
2. minuend, subtrahend, difference
3. multiplicand, multiplier, product
4. divisor, dividend, quotient, remainder

Section F:

1. 56
2. 132
3. 112
4. 12
5. 32
6. 43
7. 57
8. 15,608
9. 840,132
10. 140
11. 1,040,000
12. 2 r 2
13. 2 r 18
14. 12 r 12
15. 17
16. 43
17. 34
18. 42

Section H:

a. 35
b. 28
c. 17
d. 18
e. 31
f. 31
g. 80

APPENDIX C

EVALUATION AND TESTING

Ways to Evaluate Pupil Growth

1. Class participation
2. Homework
3. Quizzes
4. Unit Test

EQUIPMENT AND SUPPLIES

Student

- Textbook/workbook
- Notebook

Teacher

- Textbook and Manual
- Overhead Projector
- Transparencies
- Bulletin Board Supplies
- Sample Problems
- Worksheets
- Business Forms (Checks)
- Handouts
- Calculator

APPENDIX D

BULLETIN BOARD IDEAS

ACCURACY IS IMPORTANT!!!!!

MISTAKES ARE COSTLY!!!

$ 30	$ 30
19	19
100	100
41	14
$190	$289

Instructions:

1. Use brightly colored construction paper to make the lettering and numbers.

APPENDIX F

SUPPLEMENTARY MATERIALS

Books

Dansby, Robert L., and Burton S. Kaliski. (1987). Business Mathematics. San Diego: Harcourt Brace Jovanovich, Publishers.

Fairbank, Roswell E., and Robert A. Schultheis. (1980). Mathematics for the Consumer Cincinnati: South-Western Publishing Company.

Lange, Walter H., Robert D. Mason, and Temoleon G. Rousos. (1984). Business Mathematics. Boston: Houghton Mifflin Company.

Lanford, Francis G. (1980). Consumer Mathematics. Dallas: Allyn and Bacon, Inc.

Johnson, Thomas A., Carole Shepard Lissy, and James K. Seeck. (1985). Business Math Today. Dubuque, Iowa: William C. Brown Publishers.

Mason, Louis D. (1985). Applied Mathematics for Merchandising. New York: MPC Educational Publisher.

Salter, Jeffery. (1983). Practical Business Math Procedures. Homewood,Illinois: Richard D. Irwin, Inc.

Periodicals

Sue Shankland. (1985, October). Remedial Math Packet Meets Needs In Office Procedures. Business Education Forum, pp. 17-19.

Doris Phillips Wilson. (1985, December). Reviewing Basic Math Skills in Beginning Typewriting. Business Education Forum, pp. 12-14.

Robert Gerver and Richard Sgroi. (1986, September/October). Rock 'N' Roll Math: A Sound Way to Success. The Balance Sheet, pp. 14-17.

Video Cassettes

"Whole Numbers" from Using Mathematics In the Plant - A Series, (3/4 or 1/2 inch video cassette, 12 minutes)
TPC Training Systems, 1301 South Grove Avenue, P.O. Box 1030,
Barrington, IL 60010

UNIT II

FRACTIONS

INTRODUCTION

People involved in business are often required to use fractions in one form or another. Fractions can appear on requisitions, purchase orders, ledger cards, invoices, statements of account, sales slips, and many other business forms. Most of the figures confronted in business are either whole numbers or fractions converted to decimal equivalents. There are many instances where a good knowledge of computational fractions will turn a hard job into an easy one, consequently shortening the time involved in completing the task.

The purpose of the unit is to enable students to identify different types of fractions and to perform the basic fundamental processes (addition, subtraction, multiplication, and division) with accuracy. Learning activities will be provided to introduce practice in the basic technique of solving fractions.

COMPETENCIES

1. Read and write fractions.
2. Reduce fractions to lowest terms.
3. Convert improper fractions to mixed numbers and vice versa.
4. Add fractions.
5. Subtract fractions.
6. Multiply fractions.
7. Divide fractions.
8. Read and use a ruler.
9. Mentally estimate answers to given problems.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Differentiate various kinds of fractions required in personal and business use.
2. Demonstrate a basic understanding of the application and uses of fundamental skills needed to solve business-related problems involving fractions.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to correctly identify the terminology for reading and writing fractions on the unit test with 75 percent accuracy.

1.2. Given a list of whole numbers, the student will express each number as a fraction with 100 percent accuracy.

2.1. Given a group of fractions, the student will reduce each fraction to lowest terms with 80 percent accuracy.

2.2. In an exercise, the student will be able to raise fractions to higher terms with 80 percent accuracy.

3.1. Given a list of fractions, the student will be able to convert improper fractions to mixed numbers with 90 percent accuracy.

3.2. In an exercise, the student will be able to convert a mixed number to an improper fraction with 90 percent accuracy.

4.1. The student will be able to correctly identify the addition terminology on the unit test with 80 percent accuracy.

4.2. Given 20 addition problems, the student will be able to complete all 20 problems with 95 percent accuracy.

4.3. The student will be able to complete an applied business problem using addition of fractions with 100 percent accuracy.

5.1. The student will be able to correctly identify the subtraction terminology on the unit test with 80 percent accuracy.

5.2. Given 15 subtraction problems, the student will be able to complete all 15 problems with 100 percent accuracy.

5.3. The student will be able to complete an applied business problem using subtraction of fractions with 90 percent accuracy.

6.1. The student will be able to correctly identify the multiplication terminology on the unit test with 80 percent accuracy.

6.2. Given ten multiplication problems, the student will be able to complete all ten problems with 80 percent accuracy.

6.3. The student will be able to complete an applied business problem using multiplication of fractions with 100 percent accuracy.

7.1. The student will be able to correctly identify the division terminology on the unit test with 80 percent accuracy.

7.2. Given ten division problems, the student will be able to complete all ten problems with 80 percent accuracy.

7.3. The student will be able to complete an applied business problem using division of fractions with 100 percent accuracy.

8.1. On the unit test, the student will be able to read and use a ruler with 100 percent accuracy.

9.1. On the unit test, the student will be able to estimate an answer to a problem, work the problem and find the correct answer, and then compare the correct answer with the estimate with 80 percent accuracy.

METHODOLOGY

The purpose of this unit is to review and reinforce students' computational skills in working with fractions. Activities are included to enhance students' knowledge and understanding of basic skills needed in computing business problems.

There are nine section tests provided with answer keys. If desired, the teacher may select items from each section test to make one unit test to be given upon completion of Unit II. The suggested accuracy levels may be adjusted to fit the local school standard or student ability.

Textbooks, audiovisual aids, business forms, problems, games, and teaching transparencies will be used in this unit. Calculators may be used for mental estimation and for checking accuracy of hand calculation. However, do not encourage the use of calculators in teaching basic methods.

SUGGESTED INTEREST APPROACHES

Some ideas for teaching fractions are listed and/or explained below.

Addition and Subtraction:

1. Prepare bulletin boards identifying types of fractions and illustrating the interchange of fraction types.

2. Have students write whole numbers in fraction form.

____A____ + ____B____ + ____C____ + ____D____

________ ________ ________ ________

A = ?/4

A + B = ?/4

A + B + C = ?/4

A + B + C + D = ?/4

KEY
1. 4/4
2. 8/4
3. 12/4
4. 16/4

3. Games and oral drills:
   a. Bingo - The teacher will prepare a list of problems for the students to solve, using the numbers on their bingo cards. As the teacher reads each question, the students will cover the correct answers on their card. The student who covers the full card will win the game. Extra points may be awarded to the winner of the game.

   b. Class Competition - Divide the students into two groups. Each group will be assigned a team captain. The teacher will ask different questions to the students in each group. The group who answers the most questions correctly will win the game. Extra points or a coke party may be awarded to the winning group.

Multiplication and Division:

1. Review multiplication tables with students.

2. Review steps in multiplying and dividing proper and improper fractions and mixed number fractions before teaching.

3. Use the current stock market report and have students calculate which stocks went up or down.

4. The student may also use the stock market report to convert the opening price of each company to an improper fraction.

Mental Estimation:

1. The students can mentally estimate the height of their teacher or classmates. Upon completion of the activity, the teacher will check for accuracy using a measuring device.

2. Class Competition - Divide the students into several small groups. Each group will compete against the other trying to guess the measurement of various items in the classroom as selected by the instructor.

The "USA Today" newspaper has a publication entitled "USA Today/Classline" that is correlated with their newspaper. The information found in this newspaper may be helpful to the teacher in presenting the stock market. The address for more information is:

USA Today/Classline
P. O. Box 500 CL
Washington, DC 20044

There is also a toll free number that can be used. The number is:

1-800-386-3024

UNIT II OUTLINE

FRACTIONS

I. Read and Write Fractions

- A. Terminology
  - 1. Simple
  - 2. Mixed
  - 3. Improper
- B. Write whole numbers in fraction form

II. Equivalent Fractions

- A. Reduce to lowest terms
- B. Raise to highest terms

III. Conversion Procedures

- A. Convert improper fractions to mixed numbers
- B. Convert mixed numbers to improper fractions

IV. Addition of Fractions and Mixed Numbers

- A. Terminology
  - 1. Like and unlike fractions
  - 2. Common denominator
  - 3. Least common denominator
  - 4. Addend
  - 5. Sum
- B. Accuracy of addition
- C. Business problem application

V. Subtraction of Fractions and Mixed Numbers

- A. Terminology
  - 1. Subtraction
  - 2. Common denominator
  - 3. Least common denominator

        4. Subtrahend
        5. Difference
        6. Borrowing
    B. Accuracy of subtraction
    C. Business problem application

VI. Multiplication of Fractions and Mixed Numbers

    A. Terminology
        1. Multiplicand
        2. Multiplier
        3. Product
        4. Cancellation
    B. Accuracy of multiplication
    C. Business problem application

VII. Division of Fractions and Mixed Numbers

    A. Terminology
        1. Divisor
        2. Dividend
        3. Quotient
        4. Remainder
    B. Accuracy of Division
    C. Business problem application

VIII. Read and Use a Ruler

IX. Mental Estimation

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to correctly identify the terminology for reading and writing fractions on the unit test with 75 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: Simple Mixed Improper	1. View transparency on types of fractions and on how to read fractions. (Appendix A, 1.1A) 2. Complete exercise on identifying and labeling different types of fractions. (Appendix A, 1.1B) 3. View teacher-prepared bulletin board display illustrating different types of fractions. (Appendix D)

4. Provide examples of fractions used in business.

5. Write a definition of each term in class notebook on fraction terminology.

1.2. Given a list of whole numbers, the student will express each number as a fraction with 100 percent accuracy.

Subject Matter Content	Learning Activities
Write whole numbers in fraction forms.	1. View transparency on writing whole numbers as fractions. (Appendix A, 1.2) 2. Complete teacher-prepared exercise on writing whole numbers as fractions.

2.1. Given a group of fractions, the student will reduce each fraction to lowest terms with 80 percent accuracy.

Subject Matter Content	Learning Activities
Reduce fractions to lowest terms.	1. View teacher's presentation on reducing fractions to lowest terms. 2. Complete exercise on reduction of fractions to lowest terms as provided by the instructor. 3. Participate in reduction of fractions game. (Appendix A, 2.1)

2.2. In an exercise, the student will be able to raise fractions to highest terms with 80 percent accuracy.

Subject Matter Content	Learning Activities
Raise fractions to highest terms.	1. View transparency on converting fractions to highest terms. (Appendix A, 2.2)

2. Complete exercises assigned from workbook or textbook covering this skill.

3.1. Given a list of fractions, the student will be able to convert improper fractions to mixed numbers with 90 percent accuracy.

Subject Matter Content	Learning Activities
Convert improper fractions to mixed numbers.	1. View teacher's presentation on converting improper fractions to mixed numbers. 2. Complete exercises on converting improper fractions to mixed numbers as provided by the instructor.

3.2. In an exercise, the student will be able to convert mixed numbers to improper fractions with 90 percent accuracy.

Subject Matter Content	Learning Activities
Convert mixed numbers to improper fractions.	1. View transparency on converting mixed numbers to improper fractions. (Appendix A, 3.2A) 2. Complete exercise on converting mixed numbers to improper fractions. (Appendix A, 3.2B) 3. Work exercises in workbook as as chosen by instructor.

4.1. The student will be able to correctly identify the addition terminology on the unit test with 80 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy of addition terminology	1. View transparencies on addition terminology. (Appendix A, 4.1A, & 4.1B) 2. Complete exercise on adding like and unlike fractions as provided by the instructor.

4.2. Given 20 addition problems, the student will be able to complete all 20 problems with 95 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy of adding fractions	1. View teacher's chalk board presentation on addition of fractions. 2. Read textbook pages assigned on addition of fractions. 3. Complete 20 test problems as provided by the instructor.

4.3. The student will be able to complete an applied business problem using addition of fractions with 100 percent accuracy.

Subject Matter Content	Learning Activity
Applied business problem	1. Complete sample problems as class activity. (Appendix A, 4.3)

5.1. The student will be able to identify correctly the subtraction terminology on the unit test with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: Subtraction Common denominator Least common denominator Minuend Subtrahend Difference	1. View transparency on subtraction terminology. (Appendix A, 5.1A) 2. Read pages assigned in textbook. 3. Complete exercises as chosen by the instructor. 4. Complete a "Brain Teaser" exercise. (Appendix A, 5.1B)

5.2. Given 15 subtraction problems, the student will be able to complete all 15 problems with 100 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy of subtracting fractions.	1. Review transparency on subtraction of fractions. (Appendix A, 5.1A) 2. Read pages assigned in the textbook. 3. Complete problems chosen by the instructor.

5.3. The student will be able to complete an applied business problem using subtraction of fractions with 90 percent accuracy.

Subject Matter Content	Learning Activities
Applied business problem	1. View presentation given by the instructor covering subtraction of fractions as it applies to business problems. 2. Read assigned pages in the textbook. 3. Complete problems chosen by the instructor. 4. Students will bring in stock market reports for determining which stocks went up or down.

6.1. The student will be able to identify correctly the multiplication terminology on the unit test with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: Multiplicand Multiplier Product Cancellation	1. View teacher's presentation on multiplication. 2. Complete sample worksheet exercises as selected by the instructor.

6.2. Given ten multiplication problems, the student will complete all ten problems with 80 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy of multiplication.	1. View presentation given by the instructor covering multiplication. 2. Complete 10 multiplication problems as selected by the instructor. 3. Give oral answers to the exercise in Activity 2, when called upon by the teacher.

6.3. The student will be able to complete an applied business problem using multiplication of fractions with 100 percent accuracy.

Subject Matter Content	Learning Activities
Applied business problem	1. View sample problem as presented by the instructor. 2. Read pages assigned in textbook on sample problems to be discussed in class. 3. Complete business problems as selected by instructor.

7.1. The student will be able to correctly identify the division terminology on the unit test with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: Divisor Dividend Quotient Remainder	1. View teacher's presentation on division terminology. 2. Complete workbook exercises as selected by the instructor. 3. Complete a word search puzzle containing words related to multiplication and division terminology. (Appendix A, 7.1)

7.2. Given ten division problems, the student will be able to compute all ten problems with 80 percent accuracy.

Subject Matter Content	Learning Activities
Accuracy of division	1. View teacher's presentation on division.
	2. Complete ten division problems provided by the instructor.
	3. Check own answers to the problems in activity 2, then checked by the teacher.

7.3. The student will be able to compute and solve the business problem using division with 100 percent accuracy.

Subject Matter Content	Learning Activities
Applied business problem	1. View instructor's presentation on division.
	2. Work out business problems as directed by the instructor.
	3. Complete sample problems as shown in activity, Appendix A.

8.1. On the unit test, the student will be able to read and use a ruler with 100 percent accuracy.

Subject Matter Content	Learning Activities
1. Read and use a ruler 2. Types of Rulers --barometer --metronome --micrometer --gap gauge --ammeter --ohmmeter --framing square --voltameter --thermometer	1. View transparency presentation as prepared by the instructor. 2. Read pages assigned in textbook. 3. Work exercises as directed by the instructor. 4. Identify different types of rulers used in business and industry.

5. Divide the surface into parts according to the teacher's instructions. Measure a given flat surface, then calculate divided part on paper using correct math skill. Check accuracy of a calculation by actually measuring divided parts.

9.1. On the unit test, the student will be able to estimate an answer to a problem, work the problem and find the correct answer, and then compare the correct answer to the estimate with 80 percent accuracy.

Subject Matter Content

Mental estimation
  Reduce fractions to lowest terms for a quick estimation for addition, subtraction, multiplication, and division of fractions.

Learning Activities

1. Review transparencies on reducing fractions to lowest terms.
2. Estimate the answers to simple problems involving all four basic operations and then work the problems for comparison answers. The problems will be selected by the instructor.
3. Mentally guess the height of teacher or classmates.
4. Participate in group competition in measuring various items in the classroom as selected by the instructor.

APPENDIX A

TRANSPARENCY FOR 1.1A

READING FRACTIONS

A fraction can be read in three different ways. The fraction 7/8 can be read as "seven eighths" or as "seven divided by eight." The "7" is the numerator and the "8" is the denominator. The line between the numerator and the denominator indicates a fraction.

Example: 7 -- Numerator
8 -- Denominator

72/146 can be read as "seventy-two one-hundred-forty-sixths" or as "seventy-two divided by one-hundred-forty-six."

A third way to read a fraction is to describe how it looks. (i.e., "seventy-two over one-hundred-forty-six").

Read the following fractions to yourself.

9/16   41/90   5/8   4/7   16/21

TYPES OF FRACTIONS

Simple fractions - When the numerator is less than the denominator.

Examples:

4/12   12/13   181/182   1/2   9/10

Improper fraction - When the numerator is equal to or greater than the denominator.

Examples:

19/6   40/10   93/16   4/3   19/0   4/4

Mixed fraction - A fraction containing a whole number and a proper fraction.

Examples:

3 3/4 - Read as three and three-quarters.

8 9/10 - Read as eight and nine-tenths.

1 1/5 - Read as one and one-fifth.

APPENDIX A

LEARNING ACTIVITY FOR 1.1B

Exercise A: Identify the different types of fractions: Common, mixed, or improper.

1. 9/32 __________

2. 46/17 __________

3. 16/2/9 __________

4. 4/7 __________

5. 4 1/10 __________

Exercise B: Label the fraction parts below:

---4 7/8 ---

Key:

Exercise A:

1. Common

2. Improper

3. Mixed

4. Common

5. Mixed

Exercise B:

Whole number (4)
Numerator (7)
Denominator (8)

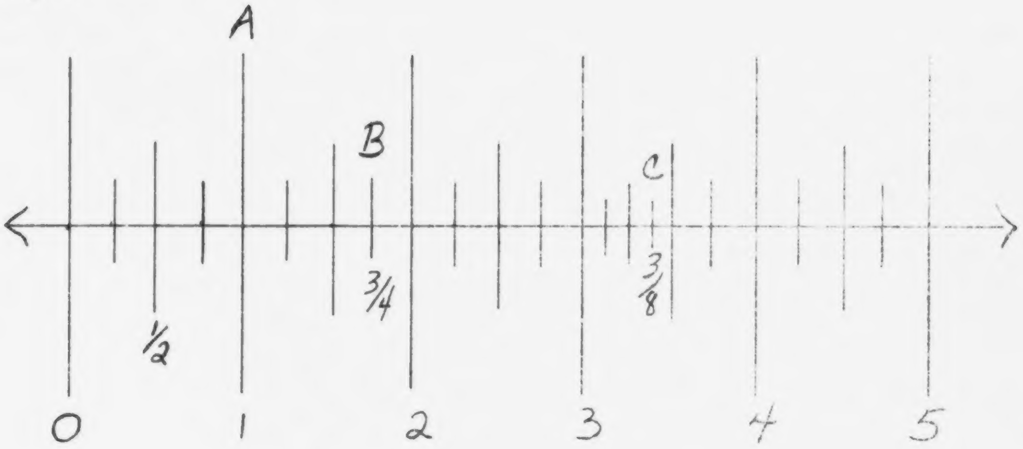
APPENDIX A

TRANSPARENCY FOR 1.2

WRITING WHOLE NUMBERS AS FRACTIONS

The numbers 0, 2, 3, 4 . . . on this number line are whole numbers. [illegible] numbers shown between the whole numbers are called fractions.

Example:



The distance from 0 to A is 1; from 0 to B is 1 3/4; from 0 to C is 3 3/8.

Example: The following fractions show the relationship of the number of different types of clerical workers to the total number of employees in Company XYZ.

The XYZ Company has 9 employees:

There are 3 bookkeepers.	3/9 of the employees are bookkeepers.
There are 4 clerk typists.	4/9 of the employees are clerk typists.
There is 1 assistant manager.	1/9 of the employees is an assistant manager.
There is 1 manager.	1/9 of the employees is a manager.

A fraction expresses a relation of one or more equal parts to a whole, or of one or more members of a group to the number in the whole group.

APPENDIX A

LEARNING ACTIVITY FOR 2.1

REDUCTION OF FRACTIONS GAME

Divide the class into at least two teams with an even number of members on each side. Students may stand (beside their desks, at the front of the classroom or wherever the teacher designates) at the beginning of the game. Students on the winning team will receive five points for each question answered correctly. Each member on the winning team receives the total bonus points.

The teacher will ask a question, based on reduction of fractions, to the first member of one team. If the student answers the question correctly, the teacher asks a different question to the first member of the next team. If the student does not know the answer or gives an incorrect answer, the student sits down and the next team gets an opportunity to answer the question. Every student who cannot answer a question correctly sits down. Answers to questions may be calculated on the board or as a mental activity. The teacher does not ask a different question until the current question has been answered correctly.

The team with the most members standing at the end of the game will receive the bonus points.

This game can be varied in many ways and adapted to almost any subject.

APPENDIX A

TRANSPARENCY FOR 2.2

RAISING FRACTIONS TO HIGHEST TERMS

To change a fraction to a higher denominator, multiply the numerator and the denominator by the same number.

Example: $2/9 = \frac{?}{63}$

Step 1: Divide 63 by 9 = 7

Step 2: Multiply 7 times the numerator 2 = 14

Step 3: Result $2/9 = \frac{14}{63}$

(Note this is the same as multiplying 2/9 x 7/7)

TRANSPARENCY FOR 3.2A

CONVERTING MIXED NUMBERS TO IMPROPER FRACTIONS

To convert a mixed number to an improper fraction:

1. Multiply the whole number by the denominator.
2. Add the numerator to the product obtained in Step 1.
3. State the sum obtained in Step 2 as the numerator over the original denominator.

Example: $5\ 1/2 = \frac{(2 \times 5) + 1}{2} = \frac{11}{2}$ - Note denominator stays the same.

APPENDIX A

LEARNING ACTIVITY FOR 3.2

CONVERTING MIXED NUMBERS TO IMPROPER FRACTIONS

Exercise: Change the following mixed numbers to improper fractions.

1) 6 3/4 = __________

2) 9 5/6 = __________

3) 7 4/5 = __________

4) 1 7/8 = __________

5) 110 1/5 = __________

6) 3 1/2 = __________

KEY

1) $\frac{27}{4}$

2) $\frac{59}{6}$

3) $\frac{39}{5}$

4) $\frac{15}{8}$

5) $\frac{551}{5}$

6) $\frac{7}{2}$

APPENDIX A

TRANSPARENCY FOR 4.1A

ADDITION OF FRACTIONS

Fractions, such as 2/8 and 3/8, that have the same denominator are called like fractions because they have a common denominator.

Example: 2/8 3/8

8 is the common denominator

Fractions that have different denominators are called unlike fractions because they do not have the same denominator. For example, 1/2 and 1/4 are unlike fractions because they do not have the same denominator.

Example: Add 1/2 and 1/4

$$\begin{array}{l} 1/2 = 2/4 \text{ (addend)} \\ \underline{1/4 = 1/4\ } \text{ (addend)} \\ \qquad\ \ 3/4 \text{ (Sum)} \end{array}$$

The least common denominator is the smallest nonzero whole number that denominators will divide evenly into.

Example: 2/5 = 4/10

The 2/5 is raised to higher terms: 4/10. Both have the same value. The 4/10 was calculated as follows:

$$2/5 = \frac{?}{10}$$

Step 1: 10/5 = 2 (Divide new denominator by old denominator.)

Step 2: Multiply 2 (Step 1) times old numerator 2 equals 4; this is new numerator.

Step 3: Results: 2/5 = 4/10

Thus, 4/10 + 9/10 = 13/10 = 1 3/10

APPENDIX A

TRANSPARENCY FOR 4.1B

ADDITION OF MIXED NUMBERS

Example: Add 3 2/5, 4 1/4, 6 7/10

Step 1: Add the whole numbers: 3 + 4 + 6 = 13

Step 2: Add the fractions: 2/5 + 1/4 + 7/10 = 8/20 + 5/20
+ 14/20 = 27/20
27/20 = 1 7/20

Step 3: Combine the two sums: 13 + 1 7/20 = 14 7/20

APPENDIX A

LEARNING ACTIVITY FOR 4.3

BUSINESS APPLICATION PROBLEM

1. The hours worked by employees in the shipping department were as follows:

S. Vullo	39 1/10
A. Johnson	36 3/10
J. Mosley	38 3/10
S. Boyette	37 7/10
G. Foster	39 9/10
C. Pugh	36 4/10

Total the hours for the department.

2. The delivery truck for ABC Dress Shop ran the following route:

Tuesday morning to the cleaners, 4/10 miles; to the post office, 7 1/10 miles; to the bank, 5 3/10 miles; to the store, 6 9/10 miles; to the gas station, 1/10 miles; to the coffee shop, 2 miles; and back to the shop, 1 1/10 miles. What was the total mileage for the delivery truck that morning?

KEY: 1) 227 7/10 Hours 2) 22 9/10 Miles

APPENDIX A

TRANSPARENCY FOR 5.1A

SUBTRACTION OF FRACTIONS

Subtraction of Fractions

When fractions are subtracted, the minuend and the subtrahend should be reduced to fractions with a least common denominator (LCD). The subtraction can then be made by deducting the numerator of the subtrahend from the numerator of the minuend and indicating the difference over the least common denominator.

Example: Subtract 1/4 from 2/3

2/3 = 8/12 (minuend)
1/4 = 3/12 (subtrahend)
5/12 (difference)

Subtraction of Mixed Numbers

In subtracting mixed numbers, find the difference between the whole number minuend and subtrahend, and the difference between the fractional parts minuend and subtrahend. Combine the two differences.

Example: Find the difference between 6 3/4 and 3 1/3.

6 (minuend) 3/4 = 9/12
-3 (subtrahend) 1/3 = 4/12
3 5/12 = 3 5/12

When borrowing is needed:

Steps:

1. Borrow from whole number.
2. Make sure fractions have LCD.
3. Subtract whole numbers and fractions.
4. Reduce fractions to lowest terms.

Example:

14 1/6
8 5/12

Find the LCD of 6 and 12: LCD = 12

APPENDIX A

LEARNING ACTIVITY FOR 5.1B

ADDITION AND SUBTRACTION TERMINOLOGY

BRAIN TEASER

Unscramble the word or words at the end of each of the following statements. Place answers on a sheet of loose-leaf paper.

1. Fractions having the same denominator. eikl otrisnfca
2. The smallest denominator shared by two or more fractions. tlsae nomcmo eodrnamitno
3. Any denominator shared by two or more fractions. onommc tneondamiro
4. Fractions having different denominator. nlekiu oafrcntis
5. Each of two numbers to be added. dadnde
6. The result of addition. msu
7. The missing addend in subtraction. refidfnece
8. The known addend in subtraction. adshubrnet
9. The total in subtraction. numnide
10. The reverse of addition. ittacrnobus

KEY:

1. Like fractions
2. Least common denominator
3. Common denominator
4. Unlike fractions
5. Addend
6. Sum
7. Difference
8. Subtrahend
9. Minuend
10. Subtraction

APPENDIX A

LEARNING ACTIVITY FOR 7.1

WORD SEARCH PUZZLE

Directions: Locate the following words in the puzzle.

1. Multiplicand
2. Multiplier
3. Product
4. Cancellation
5. Division
6. Dividend
7. Quotient
8. Remainder

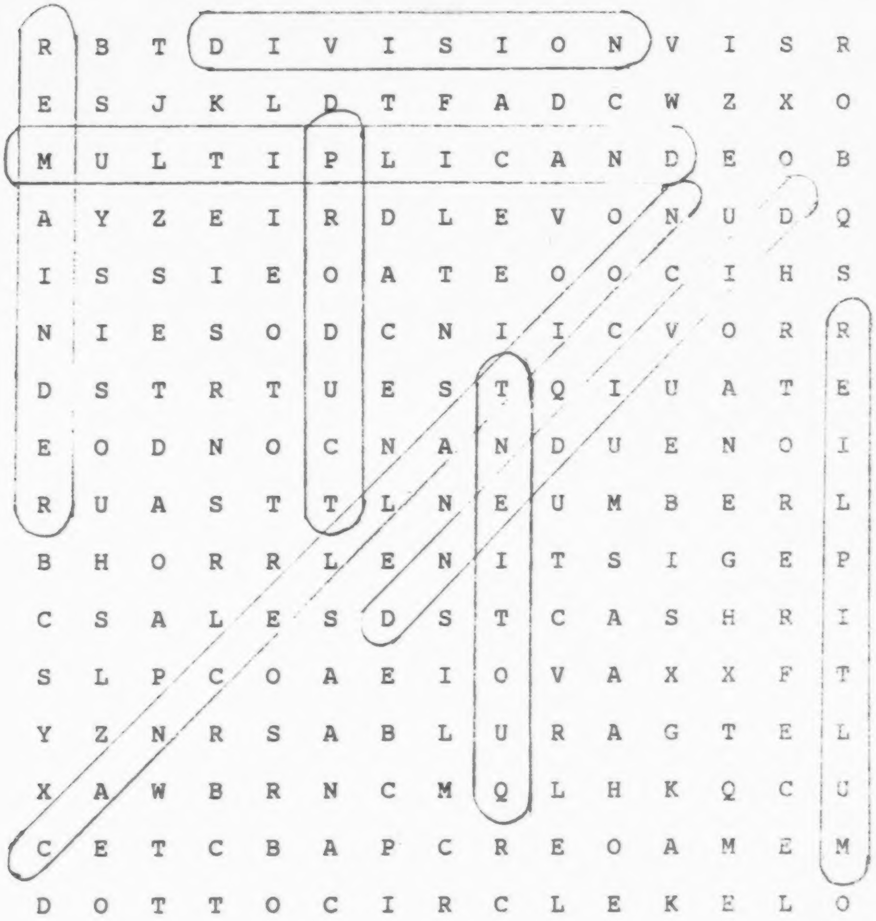
R	B	T	D	I	V	I	S	I	O	N	V	I	S	R
E	S	J	K	L	D	T	F	A	D	C	W	Z	X	O
M	U	L	T	I	P	L	I	C	A	N	D	E	O	B
A	Y	Z	E	I	R	D	L	E	V	O	N	U	D	Q
I	S	S	I	E	O	A	T	E	O	O	C	I	H	S
N	I	E	S	O	D	C	N	I	I	C	V	O	R	R
D	S	T	R	T	U	E	S	T	Q	I	U	A	T	E
E	O	D	N	O	C	N	A	N	D	U	E	N	O	I
R	U	A	S	T	T	L	N	E	U	M	B	E	R	L
B	H	O	R	R	L	E	N	I	T	S	I	G	E	P
C	S	A	L	E	S	D	S	T	C	A	S	H	R	I
S	L	P	C	O	A	E	I	O	V	A	X	X	F	T
Y	Z	N	R	S	A	B	L	U	R	A	G	T	E	L
X	A	W	B	R	N	C	M	Q	L	H	K	Q	C	U
C	E	T	C	B	A	P	C	R	E	O	A	M	E	M
D	O	T	T	O	C	I	R	C	L	E	K	E	L	O

APPENDIX A

LEARNING ACTIVITY FOR 7.1

WORD SEARCH PUZZLE

KEY



R	B	T	D	I	V	I	S	I	O	N	V	I	S	R
E	S	J	K	L	D	T	F	A	D	C	W	Z	X	O
M	U	L	T	I	P	L	I	C	A	N	D	E	O	B
A	Y	Z	E	I	R	D	L	E	V	O	N	U	D	Q
I	S	S	I	E	O	A	T	E	O	O	C	I	H	S
N	I	E	S	O	D	C	N	I	I	C	V	O	R	R
D	S	T	R	T	U	E	S	T	Q	I	U	A	T	E
E	O	D	N	O	C	N	A	N	D	U	E	N	O	I
R	U	A	S	T	T	L	N	E	U	M	B	E	R	L
B	H	O	R	R	L	E	N	I	T	S	I	G	E	P
C	S	A	L	E	S	D	S	T	C	A	S	H	R	I
S	L	P	C	O	A	E	I	O	V	A	X	X	F	T
Y	Z	N	R	S	A	B	L	U	R	A	G	T	E	L
X	A	W	B	R	N	C	M	Q	L	H	K	Q	C	U
C	E	T	C	B	A	P	C	R	E	O	A	M	E	M
D	O	T	T	O	C	I	R	C	L	E	K	E	L	O

APPENDIX A

LEARNING ACTIVITY FOR 7.3

DIVISION PROBLEMS

Exercise: Find the quotient in each problem.

1. 4 3/8 ÷ 5 _____	KEY: 1.	7/8
2. 5 3/8 ÷ 7 _____	2.	4/5
3. 3 3/4 ÷ 4 _____	3.	15/16
4. 6 3/4 ÷ 9 _____	4.	3/4
5. 6 2/3 ÷ 8 _____	5.	5/6
6. 8 3/4 ÷ 15 _____	6.	7/12
7. 2 ÷ 3 1/8 _____	7.	16/25
8. 4 ÷ 3 1/8 _____	8.	5/8
9. 2 2/5 ÷ 1 1/3 _____	9.	1 4/5
10. 1 1/4 ÷ 1 2/3 _____	10.	1 2/3

APPENDIX B

UNIT II PRETEST

A. Identify the following by type of fraction: Common, mixed, or improper.

1. 11/9 __________
2. 4/7 __________
3. 16 2/9 __________
4. 41/35 __________

B. Reduce the following fractions to their lowest terms.

1. 6/16 = ______
2. 14/16 = ______
3. 9/12 = ______
4. 6/8 = ______

C. Change the following improper fractions to mixed numbers.

1. 13/8 = ______
2. 5/2 = ______
3. 9/8 = ______
4. 14/5 = ______

D. Change the following mixed numbers to improper fractions.

1. 6 3/4 = _____
2. 1 7/8 = _____
3. 3 1/2 = _____
4. 1 1/2 = _____

E. Write sums in simplest form.

1. 3/5 + 1/5 = ________
2. 3/8 + 3/8 = ________
3. 7 + 5/10 = ________
4. 9/12 + 11 = ________

F. Subtract: Write answers in simplest form.

1. 9/10 - 3/10 = ______
2. 11/12 - 5/12 = ______
3. 7/8 - 3/4 = ________
4. 2/3 - 3/5 = ________

G. Multiply: Write products in simplest form.

1. 3/5 x 1/2 = ________
2. 3/8 x 1/4 = ________
3. 9/10 x 3/4 = _______
4. 8/9 x 5/6 = ________

H. Division: Write quotients in simplest form.

1. 5/6 ÷ 1/6 = ________
2. 2/3 ÷ 1/2 = ________
3. 7/8 ÷ 2/5 = ________
4. 1/2 ÷ 3/4 = ________

APPENDIX B

UNIT II

PRETEST ANSWER KEY

Section A:

1. Improper
2. Common
3. Mixed
4. Improper

Section B:

1. 3/8
2. 7/8
3. 3/4
4. 3/4

Section C:

1. 1 5/8
2. 2 1/2
3. 1 1/8
4. 2 4/5

Section D:

1. 27/4
2. 15/8
3. 7/2
4. 3/2

Section E:

1. 4/5
2. 3/4
3. 7 1/2
4. 11 3/4

Section F:

1. 3/5
2. 1/2
3. 1/8
4. 1/115

Section G:

1. 3/10
2. 3/32
3. 27/40
4. 20/27

Section H:

1. 5
2. 1 1/3
3. 2 3/16
4. 3/8

APPENDIX B

UNIT II

POSTTEST

I. Terminology--Directions: Match the term on the right with the statement on the left.

__ 1. Numerator smaller than denominator

__ 2. Terms divisible only by 1

__ 3. Numerator equal to or larger than denominator

__ 4. The numeral above the line in a fraction

__ 5. A whole number and a fraction

__ 6. The numeral below the line in a fraction

__ 7. Fractions that name the same

__ 8. The smallest denominator shared by two or more fractions

__ 9. Any denominator shared by two or more fractions

__10. Fractions having different denominators

__11. Fractions having the same denominator

A. Least common denominator

B. Equivalent fractions

C. Like fractions

D. Common denominator

E. Unlike fractions

F. Improper fraction

G. Denominator

H. Mixed number

I. Numerator

J. Proper fractions

K. Lowest terms

II. Reduce the following fractions to lowest terms:

1. 16/18 = ___
2. 40/50 = ___
3. 6/10 = ___
4. 5/20 = ___
5. 8/16 = ___
6. 50/100 = ___
7. 34/72 = ___
8. 7/21 = ___
9. 10/15 = ___
10. 20/24 = ___

III. Change the following fractions to the terms indicated.

1. 2/15 = ?/45 ___
2. 2/3 = ?/9 ___
3. 4/5 = ?/15 ___
4. 1/10 = ?/10 ___
5. 2/9 = ?/54 ___
6. 6/8 = ?/32 ___
7. 5/8 = ?/28 ___
8. 5/7 = ?/42 ___
9. 45/90 = ?/180 ___
10. 3/4 = ?/12 ___

IV. Part A: Change the following to whole or mixed numbers, reduce to lowest terms.

1. 40/15 = ___
2. 75/5 = ___
3. 90/35 = ___
4. 125/25 = ___
5. 350/50 = ___
6. 275/5 = ___
7. 60/20 = ___
8. 44/20 = ___
9. 388/300 = ___
10. 1200/20 = ___

Part B: Change each of the following mixed numbers to improper fractions.

1. 1 1/3 = ___
2. 7 1/2 = ___
3. 9 2/3 = ___
4. 17 1/4 = ___
5. 35 1/2 = ___
6. 14 2/3 = ___
7. 8 3/4 = ___
8. 6 1/7 = ___
9. 18 2/9 = ___
10. 40 7/9 = ___

V. Find the lowest denominator, and add each of the following sets of fractions:

1. 3/4 + 5/8 + 7/9 + 1/12 = ___
2. 15 4/5 + 12 2/3 = ___
3. 1/2 + 6/7 + 1/3 + 7/8 = ___
4. 2/7 + 1/7 + 3/14 + 1/12 = ___
5. 15/40 + 11/30 + 17/60 = ___
6. 3/5 + 1/8 + 2/3 + 4/9 = ___
7. 14/21 + 12/42 + 15/63 = ___
8. 9/11 + 6/9 + 2/3 + 1/4 = ___
9. 12/15 + 6/45 + 41/90 = ___
10. 25 7/8 + 18 2/9 = ___

VI. Subtract the following:

1. 1/2 - 1/4 = ___
2. 8/9 - 1/2 = ___
3. 1/8 - 1/9 = ___
4. 2/3 - 1/3 = ___
5. 40 7/8 - 4 5/9 = ___
6. 14 1/2 - 7 1/3 = ___
7. 18 2/3 - 16 3/4 = ___
8. 7/8 - 3/7 = ___
9. 10 1/4 - 2 1/8 = ___
10. 38 1/2 - 6 7/8 = ___

VII. Multiply. Reduce answers to lowest terms.

1. 3/5 x 2/3 = ___
2. 10 x 1/2 = ___
3. 5/6 x 1/3 = ___
4. 1/2 - 2/2 = ___
5. 1/2 x 3/3 = ___
6. 4 x 2/13 = ___
7. 4/9 x 3/5 = ___
8. 1/3 x 1/8 = ___
9. 3/8 x 3/3 = ___
10. 2/3 x 2/2 = ___

VIII. Divide. Reduce answers to lowest terms.

1. 1/3 ÷ 5/6 = ___
2. 4/9 ÷ 3/5 = ___
3. 2/3 ÷ 3/4 = ___
4. 2/3 ÷ 4/5 = ___
5. 5 ÷ 3/8 = ___
6. 9 ÷ 2/3 = ___
7. 7 ÷ 7/12 = ___
8. 2 ÷ 8/9 = ___
9. 5 ÷ 3/8 = ___
10. 24÷ 3/8 = ___

IX. Solve the following application problem.

M. Brumfield, a travel agent, for the ABC Company, has 80 clerical workers, and 20 researchers who travel in order to compare prices, hotel, etc.

What fraction of the staff does clerical work? _____

X. Mental Estimation:

Each student will mentally estimate the length of the instructor's desk. Afterwards, the students will be allowed to check their calculations using a measuring device.

XI. Ruler:

1. A table is 6 feet long. How many inches long is it?
2. A card measures 3 3/4 inches long. A second card measures 4 1/2 inches long. How much longer is the second card?

APPENDIX B

UNIT II POSTTEST

ANSWER KEY

Section I:
1. D
2. E
3. G
4. F
5. C
6. B
7. A
8. K
9. I
10. H
11. J

Section II:
1. 8/9
2. 1/2
3. 4/5
4. 17/36
5. 3/5
6. 13
7. 1/4
8. 2/3
9. 1/2
10. 5/6

Section III:
1. 6
2. 24
3. 6
4. 80
5. 12
6. 30
7. 10
8. 90
9. 12
10. 9

Section IV: Part A
1. 2 2/3
2. 55
3. 15
4. 3
5. 2 4/7
6. 2 1/5
7. 5
8. 1 22/75
9. 7
10. 60

Section IV: Part B
1. 4/3
2. 44/3
3. 15/2
4. 35/4
5. 29/3
6. 43/7
7. 69/4
8. 164/9
9. 71/2
10. 367/9

Section V:
1. 2 17/12
2. 1 301/360
3. 28 7/15
4. 2 53/132
5. 2 95/168
6. 2 53/132
7. 19/28
8. 1 7/18
9. 1 1/40
10. 44 7/72

Section VI:
1. 1/4
2. 7 1/6
3. 7/18
4. 1 11/12
5. 1/72
6. 25/56
7. 1/3
8. 8 1/8
9. 36 23/72
10. 31 5/8

Section VII:
1. 6 15
2. 8/13
3. 5
4. 4/15
5. 5/18
6. 2/4
7. 3/6
8. 1/24
9. 9/24
10. 4/6

Section VIII:
1. 2/5
2. 13 1/2
3. 20/27
4. 12
5. 8/9
6. 5/6
7. 13 1/3
8. 2 1/4
9. 13 1/3
10. 64

Section IX:
1. 4/5

Section X
1. Answers will vary

Section XI:
1. 72 inches
2. 3/4 inch

APPENDIX C

EVALUATION AND TESTING

Ways to Evaluate Pupil Growth:

1. Class participation
2. Homework
3. Quizzes
4. Unit Test

EQUIPMENT AND SUPPLIES

Student:

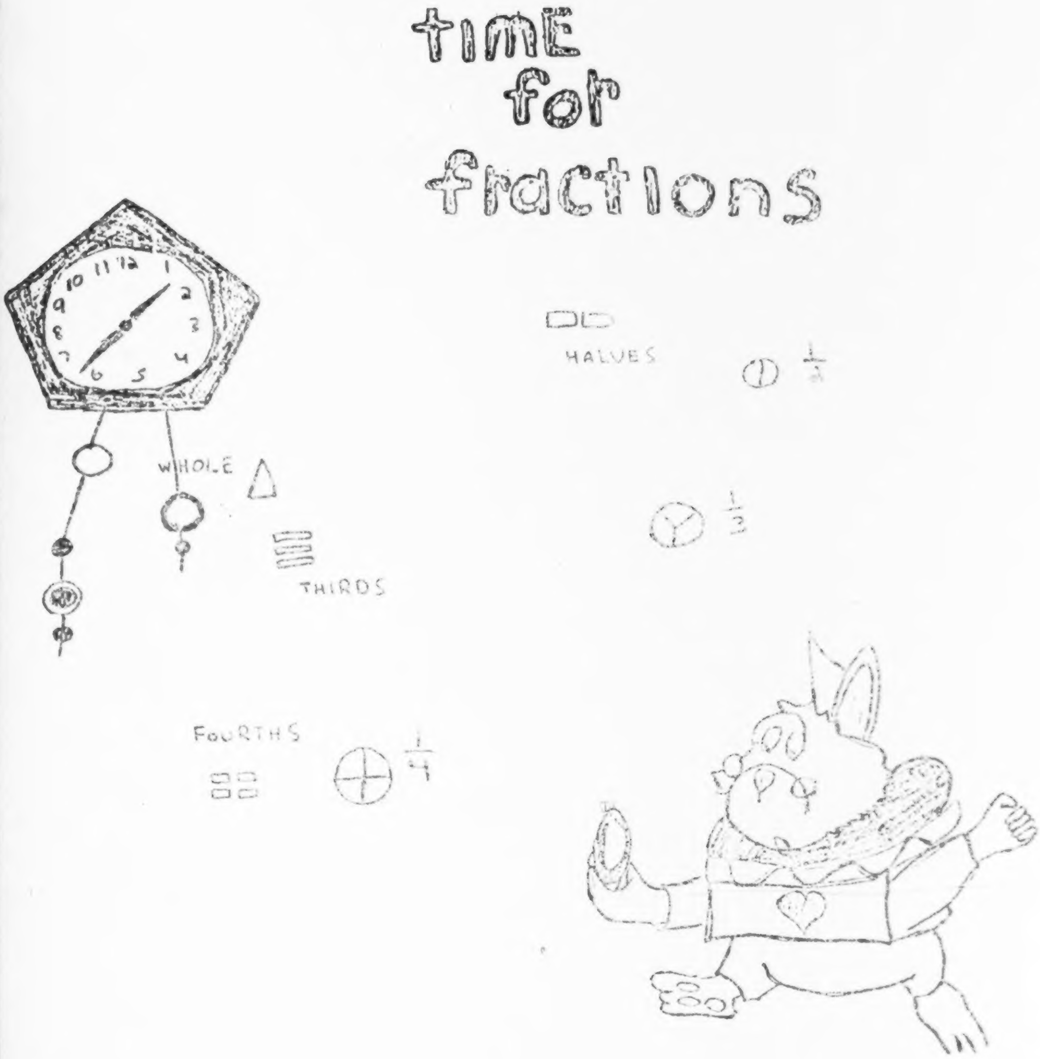
1. Textbook/workbook
2. Notebook
3. Newspaper-Stock Market Reports
4. Rulers

Teacher:

1. Textbook and Manual
2. Overhead Projector
3. Transparencies
4. Bulletin Board Supplies
5. Sample Problems
6. Worksheets
7. Business Forms
8. Handouts
9. Calculator

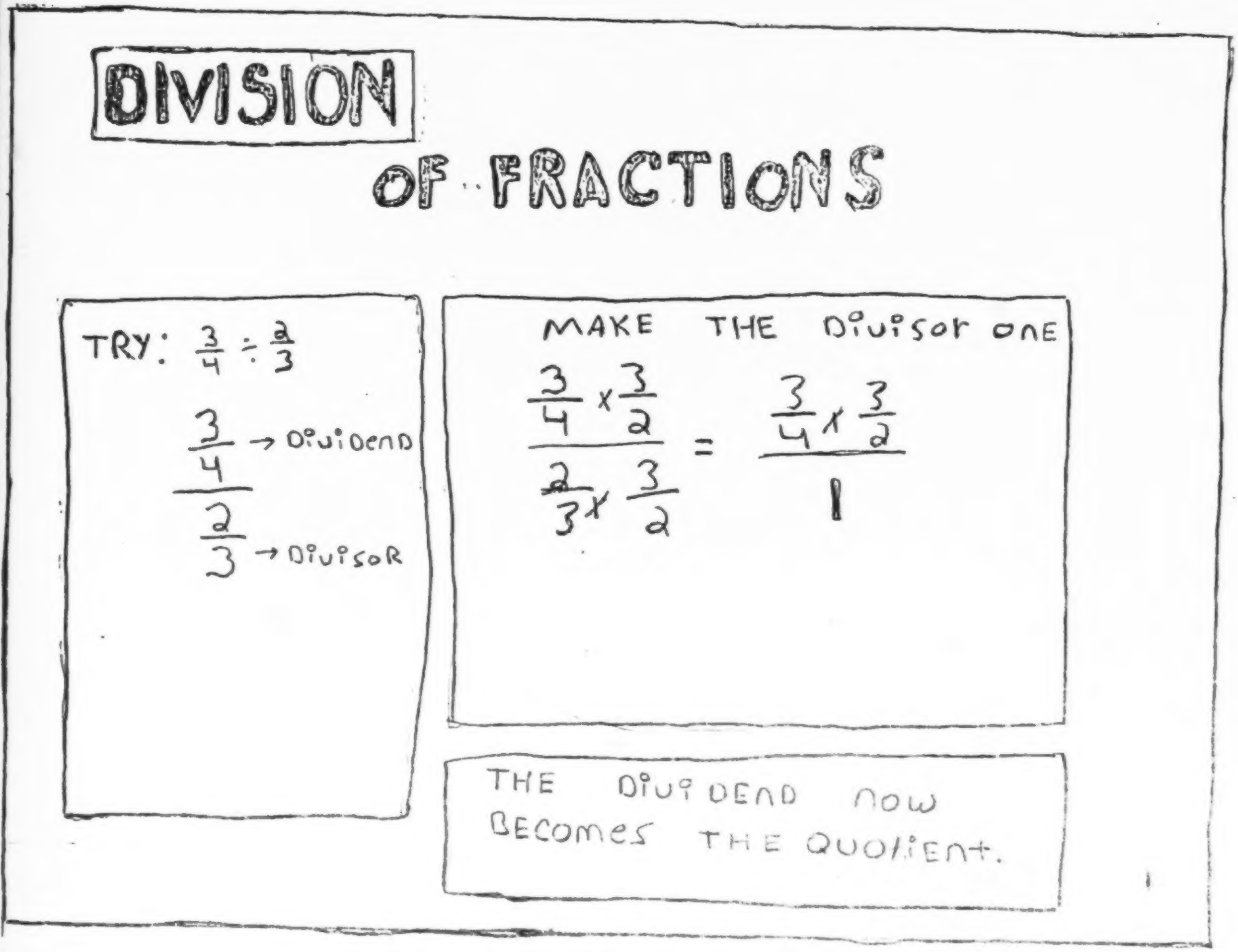
APPENDIX D

BULLETIN BOARD IDEA


time for fractions
12
1
2
3
4
5
6
7
8
9
10
11
HALVES
$\frac{1}{2}$
WHOLE
THIRDS
$\frac{1}{3}$
FOURTHS
$\frac{1}{4}$

APPENDIX D

BULLETIN BOARD IDEA



DIVISION OF FRACTIONS

TRY: $\frac{3}{4} \div \frac{2}{3}$

$$\frac{\frac{3}{4} \rightarrow \text{DIVIDEND}}{\frac{2}{3} \rightarrow \text{DIVISOR}}$$

MAKE THE DIVISOR ONE

$$\frac{\frac{3}{4} \times \frac{3}{2}}{\frac{2}{3} \times \frac{3}{2}} = \frac{\frac{3}{4} \times \frac{3}{2}}{1}$$

THE DIVIDEND NOW BECOMES THE QUOTIENT.

APPENDIX E

SUPPLEMENTARY MATERIAL

Books

[illegible], Robert L., and Burton S. Kaliski. (1987). Business Mathematics. San Diego, California: Harcourt Brace Jovanovich, Publishers.

Fairbank, Rosuell E., and Robert A. Schultheis. (1980). Mathematics For The Consumer. Dallas, Texas: South-Western Publishing Company.

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[illegible], Louis D. (1985). Applied Mathematics For Merchandising. New York: MPC Educational Publisher.

Slater, Jeffery. (1983). Practical Business Math Procedures. Homewood, Illinois: Richard D. Irwin, Inc.

Tuttle, Michael D. (1987). Business Math. Dubuque, Iowa: William C. Brown Publishers.

UNIT III

DECIMALS

INTRODUCTION

Because there are so many facets of business that relate to decimal numbers, it is imperative that students become adept in their ability to perform functions that relate to this subject matter. Emphasis is placed on the student's mental ability to compute answers correctly without the aid of a calculator.

Upon successful completion of this unit, the student will be able to solve business-related problems that involve decimal numbers. Such basic skills as adding, subtracting, multiplying and dividing with decimal numbers are covered. The student will also be able to round off, make mental estimations, count change and use short cut methods involving decimals.

COMPETENCIES

1. Read and write decimals.
2. Round off decimals.
3. Add decimals.
4. Subtract decimals.
5. Multiply decimals.
6. Divide decimals.
7. Convert fractions to decimals.
8. Convert decimals to fractions.
9. Count money and make change.
10. Use short cut method for multiplying and dividing decimals.
11. Make mental estimations.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Demonstrate correct techniques for reading and writing, rounding off, and converting decimal numbers.
2. Correctly apply fundamental skills of addition, subtraction, multiplication, and division to solve business-related problems.

3. Correctly apply skills in other areas of subsequent units whenever decimal numbers are utilized, such as banking, payroll, interest, and other related areas.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. Student will demonstrate an understanding of being able to read and write decimal numbers to correct position with 88% accuracy on a section test.

1.2. Student will be able to read and write mixed decimal numbers on a section test with 88% accuracy.

2.1. Student will be able to identify digits to be rounded off on section test with 88% accuracy.

2.2. Student will demonstrate ability to round off decimal numbers to a stated decimal place by completing a written exercise.

2.3. Student will demonstrate ability to round to nearest cent (penny) as utilized by most retail stores with 88% accuracy on a section test.

3.1. Given several problems as a classroom assignment, student will be able to add decimal numbers.

3.2. Student will demonstrate knowledge of adding zeros to the end of decimal numbers without changing the value by completing a a section test with 88% accuracy.

4.1. Student will demonstrate ability to subtract decimal numbers with 88% accuracy as required on a section test.

5.1. Student will demonstrate ability to multiply decimal numbers with 70% accuracy as given on a section test.

6.1. Given a set of problems, student will demonstrate ability to divide decimal numbers with 70% accuracy.

7.1. Given a class assignment, student will demonstrate ability to convert fractions to decimals.

8.1. Student will demonstrate ability to convert decimals to fractions on a classroom exercise.

9.1. Student will be able to count correct change from a sale given classroom simulations.

10.1. On a given set of problems, student will be able to multiply and divide decimal numbers by multiples of ten.

10.2. Given problems on a test, student will demonstrate the ability to multiply and divide decimal numbers by [illegible] of tenths.

11.1. Given problems to complete, student will be able to make mental estimations when multiplying decimal numbers with 88% accuracy.

METHODOLOGY

Decimal numbers are a natural and essential part of most transactions involving numbers. Money and measurements are the two most common uses for decimal numbers. The concepts of handling decimals will be covered.

Although conversion of fractions and decimals is covered, percents and decimals will be covered in Unit IV. The involvement of decimals with money is also approached. A bulletin board suggestion could add interest and thought-provoking humor to this unit for students.

Students will have the opportunity to reinforce learning skills with the use of drills, exercises, reviews, and flash cards. Daily quizzes may be administered randomly to check progress and understanding by students. A pretest is included as well as three sectional tests. If a unit test is desired, questions may be pulled from each of these section tests. The grading scale rate may be changed to suit the individual teacher or school system.

SUGGESTED INTEREST APPROACHES

1. Bulletin Board Display -- could be put up at the beginning of the unit to encourage participation and interest.
2. Flash card games to be played as teams or individually. Hold up card which has a fraction number or decimal number which must be converted. The first student to call out or write on board the correct answer scores a point for the team or self.
3. Class participation on observing different ways retailers count change to customers and report findings to class.
4. Role-playing -- Pair students as customer and retailer and have them make correct change as teacher calls out amount of purchase and money given. Reverse roles so everyone is involved in counting out correct change.
5. Students could see how much they would save from the process allowed by the government to round off to the nearest dollar when filing taxes. Teacher should have a few simulations for students to consider.

UNIT III OUTLINE

DECIMALS

I. Basic Decimal Operations

- A. Read and write decimals
  - 1. Numbers to the right of decimal point in multiples of tenths
  - 2. Mixed decimals
- B. Round off decimals
  - 1. Rounding procedures
  - 2. Retail stores' methods of rounding cents
- C. Addition of Decimals
  - 1. Align decimals
  - 2. End zeros
- D. Subtraction of decimals
  - 1. Align decimals
  - 2. End zeros

- E. Multiplication of decimals
- F. Division of decimals
- G. Conversion of fractions to decimals
- H. Conversion of decimals to fractions

II. Counting Money/Making Change

- A. Amount of sale deducted from amount received
- B. Accuracy of application

III. Short Cut Multiplication and Division

- A. By multiples of tens
- B. By multiples of tenths

IV. Mental Estimation

- A. Round all the way to the left
- B. Compare to exact answer

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. Student will demonstrate an understanding of being able to read and write decimal numbers to correct position with 88% accuracy on a section test.

Subject Matter Content	Learning Activities
Read and write decimals	1. View teacher's transparency of correct position or place value of decimal numbers. (Appendix A, 1.1A) 2. Complete exercise on reading and writing decimal numbers. 3. Participate in oral exercise for reading decimal numbers. 4. Participate in flash cards game on conversion of decimals. (Appendix A, 1.1B)

1.2. Student will be able to read and write mixed decimal numbers on a section test with 88% accuracy.

Subject Matter Content	Learning Activities
Read and write mixed decimal numbers Correlation between mixed fractions and mixed decimals	1. View teacher's presentation on reading and writing mixed decimal numbers. 2. View teacher's presentation on correlation between mixed fractions and mixed decimals. 3. Complete exercise on writing mixed decimals. 4. Complete daily quiz on writing mixed decimals.

2.1. Student will be able to identify digit to be rounded off on section test with 88% accuracy.

Subject Matter Content	Learning Activities
Identify digit to be rounded	1. Review transparency in 1.1A for finding digit to be rounded. (Appendix A, 1.1A) 2. Complete oral exercise on locating digit to be rounded.

2.2. Student will demonstrate ability to round off decimal number to a stated decimal place by completing a written exercise.

Subject Matter Content	Learning Activities
Rules for rounding decimal numbers to nearest and exact place value.	1. View teacher's presentation on rounding to nearest decimal place. 2. Complete oral exercise on rounding to nearest decimal place. 3. View teacher's presentation on rounding to exact decimal place. 4. Complete written exercise on rounding to exact decimal place as provided by teacher.

2.3. Student will demonstrate ability to round to nearest cent (penny) as utilized by most retail stores with 88% accuracy on a section test.

Subject Matter Content	Learning Activities
Exception to rounding used by retail stores.	1. View teacher's demonstration of procedure used by retail stores for rounding to nearest cent.

2. Complete oral or written exercise on rounding to nearest cent.

3. Ask retail establishments how they round to nearest cent and report findings to class.

3.1. Given several problems as a classroom assignment, student will be able to add decimal numbers.

Subject Matter Content	Learning Activities
Align decimals	1. View teacher's demonstration on aligning decimals in preparation for adding. 2. Complete exercise on adding decimal numbers. 3. Participate in speed drill at chalkboard on aligning and adding decimal numbers as called out by teacher.

3.2. Student will demonstrate knowledge of adding zeros to the end of decimal numbers without changing the value by completing section with 88% accuracy.

Subject Matter Content	Learning Activities
Add on ending zeros	1. View teacher's presentation of adding end zeros to decimal numbers. 2. Complete exercise of problems where adding end zeros makes addition easier. 3. Complete daily quiz on problems where end zeros should be attached.

4.1. Student will demonstrate ability to subtract decimal numbers with 88% accuracy as required on section test.

Subject Matter Content	Learning Activities
Align decimal numbers Add end zeros	1. View teacher's presentation on aligning decimals for subtraction. 2. Complete exercise on subtracting decimal numbers. 3. Complete exercise on subtracting decimals where zeros should be attached.

5.1. Student will demonstrate ability to multiply decimal numbers with 70% accuracy as given on a section test.

Subject Matter Content	Learning Activities
Rules for multiplication: Multiply as a whole number Count total number of decimal places Insert decimal in product Drop end zeros	1. View teacher's demonstration on multiplication of decimals. 2. Participate in oral drill on counting number of decimal places that should be in the answer. 3. Complete exercise on multiplication of decimals.

6.1. Given a set of problems, student will demonstrate ability to divide decimal numbers with 70% accuracy.

Subject Matter Content	Learning Activities
Rules for division: When divisor is a whole number When divisor contains a decimal	1. View teacher's presentation on division of decimals when divisor is a whole number. 2. View teacher's presentation on division when divisor contains a decimal.

3. Review terms in division: Divisor, Dividend, Quotient (Unit I)

4. Complete Section I test covering objectives 1.1 through 6.1. (Appendix B)

7.1. Given a class assignment, student will demonstrate ability to convert fractions to decimals.

Subject Matter Content

Rules for conversion of fractions to decimals:
  Divide numerator by denominator
  Calculate rounded answer
  Calculate exact answer

Learning Activities

1. Observe teacher's presentation on converting fractions to decimals.
2. Write rules for converting fractions to decimals in notebook.
3. Complete written exercise on converting fractions to decimals.
4. View teacher's presentation of converting fractions to decimals when answer should be rounded to a certain digit.
5. View teacher's presentation of converting fractions to decimals when answer does not come out even and should be exact.
6. Complete written exercise on converting fractions to decimals when answer is to be rounded or exact.
7. Complete daily quiz on converting from fractions to decimals.

8.1. Student will demonstrate ability to convert decimals to fractions on a classroom exercise.

Subject Matter Content

Rules for conversion of decimals to fractions:
- Write decimal number as the numerator
- Write 1 as the first digit in the denominator
- Add one zero to the right of the 1 for as many digits as there were in the decimal number

Learning Activities

1. Review terminology of fractions in Unit II.
2. Write rules for converting decimals to fractions in notebook.
3. View teacher's explanation of converting decimals to fractions.
4. Complete oral and/or written exercise on converting decimals
5. Complete Section II Test covering objectives 7.1 through 8.1.
   (Appendix B)

9.1. Student will be able to count correct change from a sale when given classroom simulations.

Subject Matter Content

Procedures for making change:
- Deduct amount of sale from amount received
- Return change in largest denominations possible

Learning Activities

1. Discuss several ways change is counted back to a person after a purchase.
2. View teacher's presentation on finding amount of change.
3. View teacher's presentation on counting denominations.
4. Take notes and/or role play different ways change is counted back to a person in area stores and report findings to class.
5. Complete written exercise on counting change.

10.1. On a given set of problems, student will be able to multiply and divide decimal numbers by multiples of ten.

Subject Matter Content

Rules for multiplication:
  - Count number of zeros in multiplier
  - Move decimal to the right that many places

Rules for division:
  - Count number of zeros
  - Move decimal to the left that many places

Learning Activities

1. View teacher's presentation on multiplication by multiples of tens.
2. Participate in oral exercise on multiplication by multiples of tens.
3. View teacher's presentation on division by multiples of tens.
4. Participate in oral exercise on division by multiples of tens.
5. Complete written exercise on multiplication and division by multiples of tens.

10.2. Given problems on a test, student will demonstrate ability to multiply and divide decimal numbers by multiples of tenths.

Subject Matter Content

Rules for multiplication:
  - Count total number of decimal places
  - Move decimal to the left that many places

Rules for division:
  - Count number of decimal places in divisor including zeros
  - Move decimal that many places to the right

Learning Activities

1. View teacher's explanation of multiplication by multiples of tenths (0.1, .01, .001, etc.).
2. Participate in oral exercise on multiplication by tenths.
3. View teacher's explanation of division by tenths.
4. Participate in oral exercise on division by tenths.
5. Complete written exercise on multiplication and division by tenths.

11.1. Given problems to complete, student will be able to make mental estimations when multiplying decimal numbers with 88% accuracy.

Subject Matter Content

Rules for estimating answer:
- Round to number all the way to the left
- Multiply as a whole number

Learning Activities

1. Copy rules for estimating answers in notebook.
2. Participate in discussion about why it is important to estimate answers.
3. Complete oral exercise on estimating answers.
4. Complete written exercise on estimating answers.
5. Complete same exercise, but find exact answers.
6. Complete Section III test covering objectives 9.1 through 11.1.
(Appendix B)

APPENDIX A

TRANSPARENCY FOR 1.1A

READING DECIMAL NUMBERS

PLACE VALUE OF DECIMAL NUMBERS

Ten Thousands
Thousands
Hundreds
Tens
Units/Ones
Decimal Point
Tenths
Hundredths
Thousandths
Ten Thousandths
Hundred Thousandths

APPENDIX A

WORD GAME

DECIMALS

Word List
Decimal
Align
Conversion
Rounding
Estimate
MakingChange
Aligning
Fractions
Tenths
Equivalent

M	T	G	N	I	D	N	U	O	R	O	E
C	A	O	N	V	E	T	R	T	A	F	T
R	A	K	C	T	I	O	E	N	T	O	A
L	A	M	I	C	E	D	A	N	D	E	M
C	I	M	A	N	L	N	U	M	T	B	I
E	R	D	G	I	G	V	I	D	E	H	T
T	H	I	F	R	A	C	T	I	O	N	S
E	L	N	U	M	E	R	H	A	T	O	E
A	G	N	I	N	G	I	L	A	R	B	Y
T	E	Q	U	I	V	A	L	E	N	T	H
E	D	E	N	O	M	I	N	A	T	G	O
C	O	N	V	E	R	S	I	O	N	R	E

When you are finished circling all the words, write down the UNUSED letters in order to make a sentence about decimals.

__ _______ _ ________ __ _

_______ ______, ______ ___

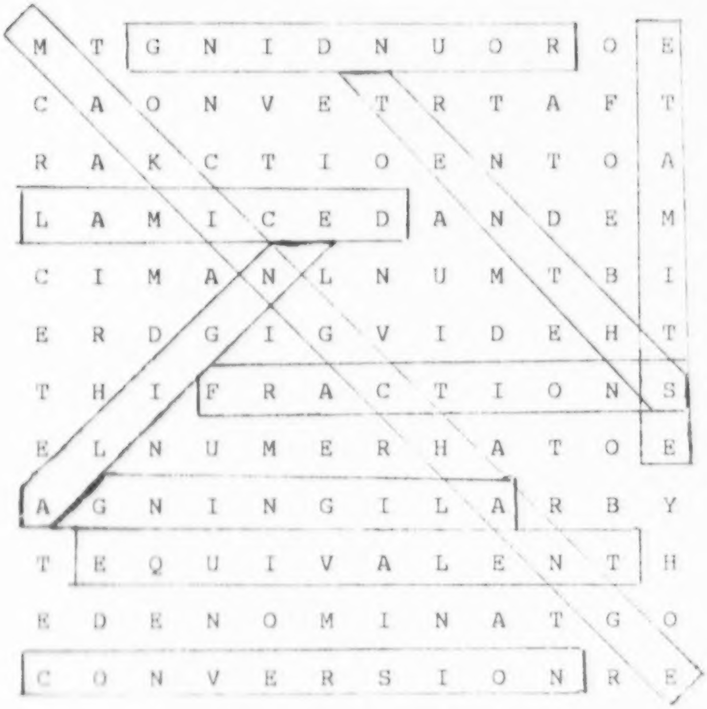
_________ __ ___ ___________.

APPENDIX A

WORD GAME KEY

DECIMALS

Word List
Decimal
Align
Conversion
Rounding
Estimate
MakingChange
Aligning
Fractions
Tenths
Equivalent



M	T	G	N	I	D	N	U	O	R	O	E
C	A	O	N	V	E	T	R	T	A	F	T
R	A	K	C	T	I	O	E	N	T	O	A
L	A	M	I	C	E	D	A	N	D	E	M
C	I	M	A	N	L	N	U	M	T	B	I
E	R	D	G	I	G	V	I	D	E	H	T
T	H	I	F	R	A	C	T	I	O	N	S
E	L	N	U	M	E	R	H	A	T	O	E
A	G	N	I	N	G	I	L	A	R	B	Y
T	E	Q	U	I	V	A	L	E	N	T	H
E	D	E	N	O	M	I	N	A	T	G	O
C	O	N	V	E	R	S	I	O	N	R	E

When you are finished circling all the words, write down the UNUSED letters in order to make a sentence about decimals.

TO CONVERT A FRACTION TO A

DECIMAL NUMBER, DIVIDE THE

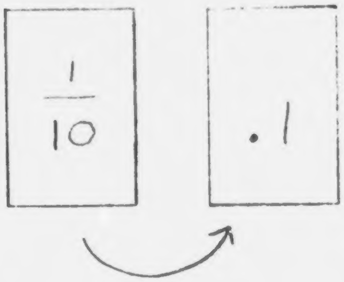
NUMERATOR BY THE DENOMINATOR.

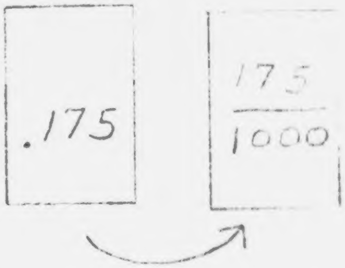
APPENDIX A

LEARNING ACTIVITY 1.1B

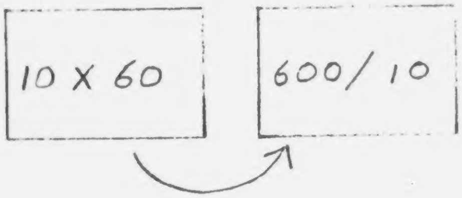
FLASH CARD GAME ON CONVERSION

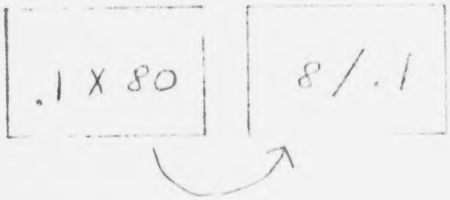
Teacher will hold up card with a fraction on one side and the equivalent decimal number on the other. If a fraction is shown, the student must give the decimal equivalent and vice-versa.





This idea could also be used for multiplication and division by tens or tenths.





APPENDIX B

UNIT III PRETEST AND KEY

	KEY
Write the following as decimal numbers:	
1. three tenths ______	.3
2. seventeen hundredths ______	.17
3. fourteen thousandths ______	.014
Round to nearest hundredths:	
4. .917 ______	.92
5. .6631 ______	.66
6. 5.807 ______	5.81
Find answer as indicated:	
7. 64.7 + 1.92 = ______	66.62
8. 543.6 - 2.413 = ______	541.187
9. 65.7 X .11 = ______	7.227
10. 11.34 / 27 = ______	.42
11. .1504 / .32 = ______	.47
Convert from fractions to decimals or decimals to fractions:	
12. 1/5 is ______	.2
13. 1/8 is ______	.125
14. .7 is ______	7/10
15. .041 is ______	41/1000
16. Mary purchased a scarf from K-Mart for $3.79. She gave the clerk a $10 bill. How much change should she receive? ______	$6.21
What denomination of money should be returned to her if she should receive the largest denominations possible?	
$5 bill ______	1
$1 bill ______	1
.50 ______	0
.25 ______	0
.10 ______	2
.05 ______	0
.01 ______	1
17. 51.27 X 100 = ______	5127
18. 6.59 / 10 = ______	.659
19. 857 / .01 = ______	85,700
20 411 X .1 = ______	41.1

APPENDIX B

SECTION I TEST AND ANSWER KEY

	KEY
Express each verbal in a decimal number form:	
1. Two thousandths ________	.002
2. Nine tenths ________	.9
3. Seventy-five ten thousandths ________	.0075
4. Fourteen and one tenth ________	14.1
5. Eighty-nine and six hundredths ________	89.06
6. True or False -- .0007 represents seven thousandths	False
7. True or False -- .015 represents fifteen hundredths	False
Round the following to nearest hundredth:	
8. .7193 ________	.72
9. 4.827 ________	4.83
10. 451.7 ________	451.70
Add or Subtract the following as indicated:	
11. 16.7 + .549 + 7.51 = ________	24.759
12. 396.41 - 175.648 = ________	220.762
13. 45.7 + 8.912 + 306.34 + 8.101 = ________	369.053
14. 89.736 - 21.4753 = ________	68.2507
Multiply or Divide and round all answers to the nearest tenth:	
15. 84.2 X .307 = ________	25.8
16. 45.368 / 22.5 = ________	2.0
17. .572 / 1.21 = ________	.5
18. 82651 X .366 = ________	30250.3
19. 16.4 X .21 = ________	3.4
20. 648.5 / 45 = ________	14.4

APPENDIX B

SECTION II TEST AND ANSWER KEY

Convert the following fractions to decimals:
(Round answer to nearest hundredth if necessary.)

	KEY
1. 7/8 ________	.88
2. 4/50 ________	.08
3. 15/100 ________	.15
4. 45/4000 ________	.01
5. 25/10,000 ________	.0025
6. 625/1000 ________	.625

Convert the following fractions to decimals
with two places of exact value:

7. 7/20 ________	.35
8. 55/98 ________	.56 6/49
9 140/280 ________	.5
10. 2/3 ________	.66 2/3
11. 75/900 ________	.08 1/3
12. 88/600 ________	.14 2/3

Convert the following decimals to fractions:

13. .81 ________	81/100
14. .640 ________	16/25
15. .0750 ________	3/40
16. .0404 ________	101/2500

Are these numbers equivalent? Yes or No

17. .3 .30 .300	________	Yes
18. .04 0.04 4/100	________	Yes
19. 1/5 .2 .02	________	No
20. .034 .0340000	________	Yes

APPENDIX B

SECTION III TEST

Find the amount of change that should be refunded and show the correct denominations.

Amount Received	Amount of Sale	Amount Refunded	$10	$5	$1	.50	.25	.10	.05	.01
1. $10	4.26									
2. $5	3.27									
3. $50	41.98									
4. $1	.79									
5. $5	1.57									
6. $10	2.51									
7. $50	15.66									
8. $10	1.45									

Mentally multiply or divide the following problems:

9. 7.48 X 10 = ______________
10. 3.4 X 100 = ______________
11. .071 X 10 = ______________
12. 71.8 X .1 = ______________
13. 365 X .001 = ______________
14. 4.25 X .01 = ______________
15. .38 / 10 = ______________
16. 64.7 / 1000 = ______________
17. 5.63 / 100 = ______________
18. 77.8 / .1 = ______________
19. .385 / .001 = ______________
20. .126 / .01 = ______________

Make mental estimations; then find the **exact** answers:

estimated exact

21. 5.35 X 9.95 = ________ X _______ = __________ __________
22. 6.9 X 22.75 = ________ X _______ = __________ __________
23. 28.6 X 4.63 = ________ X _______ = __________ __________
24. 60.1 X 860 = ________ X _______ = __________ __________
25. 4.9 X 34.78 = ________ X _______ = __________ __________

APPENDIX [illegible]

SECTION III ANSWER KEY

Amount Received	Amount of Sale	Amount Refunded	$10	$5	$1	.50	.25	.10	.05	.01
1. $10	4.26	5.74		1		1		2		4
2. $5	3.27	1.73			1	1		2		3
3. $50	41.98	8.02		1	3					2
4. $1	.79	.21						2		1
5. $5	1.57	3.43			3		1	1	1	3
6. $10	2.51	7.49		1	2		1	2		4
7. $50	15.66	34.34	3		4		1		1	4
8. $10	1.45	8.55		1	3	1			1	

9. 74.8
10. 3400
11. .71
12. 7.18
13. .365
14. .0425

15. .038
16. .0647
17. .0563
18. 778
19. 385
20. 12.6

21. 5 x 10 = 50 53.23
22. 7 x 20 = 140 156.97
23. 30 x 5 = 150 132.41
24. 60 x 900= 54,000 51,686
25. 5 x 30 = 150 170.422

APPENDIX C

EVALUATION AND TESTING

Ways to evaluate student progress:

1. Oral exercises and class participation

2. Homework

3. Quizzes

4. Section Tests

5. Unit Test

EQUIPMENT AND SUPPLIES

Student:

1. Textbook
2. Notebook/Pencil

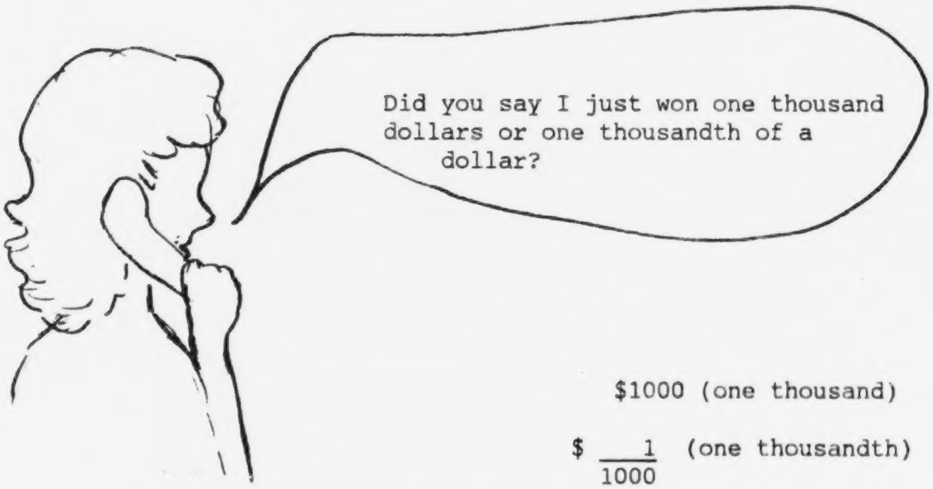
Teacher:

1. Textbook/Manual
2. Overhead Projector
3. Transparencies
4. Handouts
5. Prepared Tests
6. Bulletin Board Supplies
7. Games
8. Flashcards
9. Play Money

APPENDIX D

BULLETIN BOARD

HOW IMPORTANT ARE DECIMALS?


Did you say I just won one thousand dollars or one thousandth of a dollar?

$1000 (one thousand)

$\$ \frac{1}{1000}$ (one thousandth)

APPENDIX E

SUPPLEMENTARY MATERIALS

Books

Jeffrey Slater. (1983). Practical Business Math Procedures. Homewood, Illinois: Richard D. Irwin, Inc.

Fairbank, Roswell E., Robert A. Schultheis, Piper. (1975). Applied Business Mathematics. Cincinnati: South-Western Publishing Co.

Itzkowitz, Richards. (1984). Mastering Essential Mathematics Skills. Homewood, Illinois: Richard D. Irwin, Inc.

Booklets/Pamphlets

Lawrence W. Swienciki. (1974). Adventures With Arithmetic. Creative Publication. (Games involving math skills with decimals for extra practice.)

Films/Filmstrips

"Decimal Fractions," (16 mm. film, 11 minutes)
Modern Learning Aids, Division of Ward's Natural Science, P.O. Box 1712, Rochester, NY 14603.

Video Cassettes

"The Point of Decimals" from the Adult Math A Series,
(3/4 or 1/2 inch video cassette, 30 minutes)
KY Educational Television, Network Center, 600 Cooper Drive,
Lexington, KY 40502

"The Case of the Defective Decimal" from the Counterplot Series,
(3/4 or 1/2 inch video cassette)
Agency for Instructional Technology, Box A, Bloomington, IN 47402

"Decimal Fractions" from Using Mathematics In The Plant - A Series,
(3/4 or 1/2 inch video cassettes, 12 minutes)
TPC Training Systems, 1301 South Grove Avenue, P.O. Box 1030,
Barrington, IL 60010

"Office Machines - Compound Annual Interest" from the Office Machines - Calculations - A Series,

"Office Machines - Compound Semi-Annual Interest" from the Office Machines- Calculations - A Series,

"Office Machines - Discounting Notes" from the Office Machines - Calculations - A Series,
(3/4 or 1/2 inch video cassettes BETA/VHS, 14 minutes)
RMI Media Productions, 2807 West 47th Street, Shawnee Mission,
KS 66205

UNIT IV

PERCENTAGES AND RATIOS

INTRODUCTION

Percents are used as a more convenient or meaningful substitute for fractions and decimals in everyday personal and business affairs. The ability to use and apply the principles of percentages is one of the most valuable tools a person can have.

There are many common applications in the distribution of goods where an understanding of the fundamental operations of the basic types of percentage problems is helpful. Students' marks on tests, salespersons' commissions, interest rates, discounts, statistical ratios, the relationships between department and similar industries or stores, and likenesses and differences in accounting periods are a few examples of how percentages are used.

Upon completion of this unit, the student will be able to comprehend the basic meaning of percentage and, as a result, become more effective in solving percentage problems.

COMPETENCIES

1. Define and write percents as fractions.
2. Convert decimals to percents, percents to decimals, fractions to percents, and percents to fractions.
3. Solve percent problems that apply to business situations.
4. Apply the percentage formula.
5. Reduce and use ratios.
6. Interpret graphs and tables.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Read, write and recognize the meaning of business terms used in solving percent problems.
2. Change percents to decimals and fractions, change fractions and decimals to percents, find what percent a number is of another, find a percent of a number.
3. Identify the base, the rate, and the percentage.
4. Solve for the unknown item.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. In class, the student will be able to clearly define a percent with 100 percent accuracy.

1.2. In class, the student will be able to write percents as common fractions with 100 percent accuracy.

1.3. Given a list of percents, the student will be able to express each percent as a decimal fraction with 100 percent accuracy.

2.1. In a class exercise, the student will be able to convert decimals to percents with 90 percent accuracy

2.2. In class, the student will be able to convert percents to decimals with 90 percent accuracy.

2.3. Given a list of fractions, the student will be able to convert a fraction to a percent with 95 percent accuracy.

2.4. In class, the student will be able to convert percents to fractions with 95 percent accuracy.

3.1. Given a list of numbers, the student will be able to find a percent of a number with 90 percent accuracy.

3.2. Given ten problems, the student will be able to determine a percent of one number to another number with 80 percent accuracy.

3.3. On a quiz, the student will be able to find a number when a percent is known with 80 percent accuracy.

4.1. In class, the student will be able to identify the terminology relating to the percentage formula with 90 percent accuracy.

4.2. The student will be able to apply the percent formulas with 90 percent accuracy.

4.3. In class, the student will be able to calculate percent increases and decreases with 90 percent accuracy.

4.4. Given a group of problems, the student will be able to calculate percent using aliquot parts with 90 percent accuracy.

5.1. In class, the student will show understanding of the term ratio by being able to complete problems.

5.2. On the unit test, the student will be able to reduce ratios to lowest terms with 80 percent accuracy.

5.3. In class, the student will be able to complete four problems using ratios with 80 percent accuracy.

5.4. The student will be able to interpret graphs and tables with 80 percent accuracy.

METHODOLOGY

This unit introduces students to the various ways in which we use percentages in everyday life. Students will be shown how to convert percents, solve percentage problems, use the percentage formula and aliquot parts, reduce ratios, and interpret graphs.

There are six section tests provided with answer keys. These test sections can be given in intervals throughout this unit or as one test. The accuracy levels assigned in the specific performance objectives may be adjusted to best suit the individual school system's standards or students' abilities.

Textbooks, visual aids, teaching transparencies, business forms, and problems will be used in this unit.

SUGGESTED INTEREST APPROACHES

1. Divide students into three groups to do bulletin board displays on formulas used to find percentage, base and rate.
2. Have students research newspapers, books, and stock market reports to find examples of practical application of formulas.
3. Have students use stock market reports to interpret and design graphs or tables on data found in these reports.
4. Have students make art objects to show the aliquot parts. Students should show how parts of the object can be related to the whole object. Emphasize to the students that the art objects should be business-related illustrations, e.g. organizational chart.
5. Have students calculate the FICA taxes as a percent of total earnings.
6. Have students compute sales tax to compare different cities in the state.
7. As a class project, have students collect menus from different restaurants in the community. Assign students the job of planning a date for two by using the menu and including their 15 percent tip and tax expense. Students should be able to compute their total bill accurately.

UNIT IV OUTLINE

PERCENTAGES AND RATIOS

I. Read and Write Percentages

- A. Define percent
- B. Write percents as fractions
  - 1. Common fractions
  - 2. Decimal fractions

II. Conversion of Percents

- A. Convert decimals to percents
- B. Convert percents to decimals
- C. Convert fractions to percents
- D. Convert percents to fractions

III. Solving Percentage Problems

- A. Finding a percent of a number
- B. Finding a percent one number is of another
- C. Finding a number when a percent is known

IV. The Percentage Formula and Aliquot Parts

- A. Terminology
  - 1. Base
  - 2. Rate
  - 3. Percentage
  - 4. Aliquot part
- B. Apply the Basic Formula
- C. Calculate percent increases and decreases
- D. Calculate using aliquot parts

V. Ratios

- A. Define ratio
- B. Reduce ratio to lowest terms
- C. Use ratios

VI. Interpret Graphs and Tables

- A. Line graphs
- B. Circle graphs
- C. Bar graphs
- D. Tables

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. In class, the student will be able to clearly define a percent with 100 percent accuracy.

Subject Matter Content	Learning Activities
Define percent	1. View teacher's presentation on percents. 2. View teacher-prepared bulletin board display on percents.

1.2. In class, the student will be able to write percents as common fractions with 100 percent accuracy.

Subject Matter Content	Learning Activities
Write percents as common fractions	1. Read textbook pages covering this topic. 2. View teacher's presentation on writing percents as common fractions. 3. Complete exercise as selected by the instructor.

1.3. Given a list of percents, the student will be able to express each percent as a decimal fraction with 100 percent accuracy.

Subject Matter Content	Learning Activities
Write percents as decimal fractions	1. View teacher's presentation on writing percents as decimal fractions. 2. Complete teacher-prepared exercise on writing percents as decimal fractions.

2.1. In a class exercise, the student will be able to convert decimals to percents with 90 percent accuracy.

Subject Matter Content	Learning Activities
Convert decimals to percents	1. View transparency on converting decimals to percents. (Appendix A, 2.1) 2. Work problems from workbook. 3. Students will orally present the answers to problems as called on by the teacher. 4. Work handout prepared by the teacher for homework.

2.2. In class, the student will be able to convert percents to decimals with 90 percent accuracy.

Subject Matter Content	Learning Activities
Convert percents to decimals	1. View transparency on converting percents to decimals. (Appendix A, 2.2) 2. Read material on this topic in textbook. 3. Student will work selected problems on chalkboard and discuss their answers with the class.

2.3. Given a list of fractions, the student will be able to convert a fraction to a percent with 95 percent accuracy.

Subject Matter Content	Learning Activities
Convert fractions to percents	1. View teacher's presentation on converting fractions to percents. 2. Work exercise chosen by the instructor.

2.4. In class, the student will be able to convert percents to fractions with 95 percent accuracy.

Subject Matter Content	Learning Activities
Convert percents to fractions.	1. View transparency on converting percents to fractions. (Appendix A, 2.4) 2. Student will provide examples of percents used in business. 3. Student will orally present the answers to problems as they are called on by the instructor. 4. Work problems from workbook. 5. For a review of objective 2.1 through 2.4, view transparency on equivalence of fractions, decimals, and percents. (Appendix A, 2.4B)

3.1. Given a list of numbers, the student will be able to find a percent of a number with 90 percent accuracy.

Subject Matter Content	Learning Activities
Find a percent of a number	1. View transparency on finding a percent of a number. (Appendix A, 3.1) 2. Student will use application of percentage method to figure a sales commission as assigned by the instructor. 3. Work handout prepared by the instructor.

3.2. Given ten problems, the student will be able to determine a percent of one number to another with 80 percent accuracy.

Subject Matter Content	Learning Activities
Find what percent one number is of another	1. View transparency on finding a percent one number is of another. (Appendix A, 3.2) 2. Student will work selected problems on the board and discuss their answers with the class. 3. Complete exercise chosen by the instructor in workbook.

3.3. On a quiz, the student will be able to find a number when a percent is known with 80 percent accuracy.

Subject Matter Content	Learning Activities
Find a number when a percent is known	1. View transparency on finding a number when a percent is known. (Appendix A, 3.3) 2. Complete assigned worksheet as prepared by the instructor. 3. Complete quiz as prepared by the instructor on this topic.

4.1. In class, the student will be able to identify the terminology relating to the percentage formula with 90 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: Base Rate Percentage Aliquot Part	1. Read text covering the percentage formula. 2. Record definitions of terms in notebook. 3. View teacher-prepared bulletin board display on the percentage formula.

4.2. The student will be able to apply the percent formulas with 90 percent accuracy.

Subject Matter Content	Learning Activities
Apply basic formulas	1. View transparency of percentage formulas. (Appendix A, 4.2) 2. Write formulas in notebook. 3. Complete exercise on using the basic formulas as assigned by the teacher.

4.3. In class, the student will be able to calculate percent increases and decreases with 90 percent accuracy.

Subject Matter Content	Learning Activities
Calculate percent increases and decreases	1. Read textbook pages on this topic. 2. View teacher's presentation on calculating percent increases and decreases. 3. Complete exercise as chosen by the instructor.

4.4. Given a group of problems, the student will be able to calculate percent using aliquot parts with 90 percent accuracy.

Subject Matter Content	Learning Activities
Calculate using aliquot parts	1. View teacher-prepared transparency on calculating aliquot parts. 2. Read textbook pages on aliquot parts. 3. Complete problems as assigned by instructor.

5.1. In class, the student will show understanding of the term ratio by being able to complete problems.

Subject Matter Content	Learning Activities
Define ratio	1. View teacher's presentation on the definition of ratio. 2. Read textbook pages on ratios. 3. Complete ratios of problems as assigned by the instructor. 4. Discuss how ratios are used in business for financial decision making.

5.2. On the unit test, the student will be able to reduce ratios to lowest terms with 80 percent accuracy.

Subject Matter Content	Learning Activities
Reduce ratio to lowest terms	1. View teacher's presentation on how to reduce a ratio to lowest terms. 2. Complete sample problems as class activity. (Appendix A, 5.2)

5.3. In class, the student will be able to complete four problems using ratios with 80 percent accuracy.

Subject Matter Content	Learning Activities
Using ratios	1. View transparency on using ratios. 2. Complete four problems that involve the use of ratios in business.

5.4. The student will be able to interpret graphs and tables with 80 percent accuracy.

Subject Matter Content	Learning Activities
Interpret graphs and tables Line graphs Circle graphs Bar graphs Tables	1. View teacher's presentation on how to interpret graphs and tables. 2. Follow in text as teacher explains the differences among the various types of graphs and tables. 3. Identify data in graphs as selected by the instructor. 4. Design graphs or tables on data as selected by the instructor.

APPENDIX A

TRANSPARENCY FOR 2.1

CONVERT DECIMALS TO PERCENTS

To convert a decimal to a percent:

Step 1: Move the decimal point two places to the right.

Step 2: Place a percent symbol at the end of the number (you are actually multiplying the number by 100).

Examples:

.75 = 75%

.451 = 45.1%

.6 = 60% (Add one zero to make two places)

5 = 500% (Add two zeros to make two places)

2.51 = 251%

.007 = .7%

Note: One percent means 1 out of every 100. Since .7% is less than 1%, it means 7/10 of 1%. This is a very small amount. Note that less than 1% numbers in decimal form have two zeros in the front of the number (.007).

APPENDIX A

TRANSPARENCY FOR 2.2

CONVERT PERCENTS TO DECIMALS

To convert a percent to a decimal:

Step 1: Drop the percent symbol. (%)

Step 2: Move the decimal point two places to the left.

If the percent is expressed in fraction form:

Step 1: Drop the percent symbol. (%)

Step 2: Convert the fraction to a decimal by dividing the numerator by the denominator. (numerator/denominator)

Step 3: Then move the decimal two places to the left (now you are really dividing by 100).

Examples:

.8% = .008
8% = .08
82% = .82
82.4% = .824
824.4% = 8.244

7 3/4% = 7.75 = .0775
5 1/2% = 5.5 = .055
1/5% = .20 = .0020
1/4% = .25 = .0025

Think of 7 3/4% as
7% = .07
+3/4 =+.0075
7 3/4 = .0775

Note: When a percent is less than 1%, the decimal conversion has two leading zeros before the whole number. Example: 008.

APPENDIX A

TRANSPARENCY FOR 2.4

CONVERTING PERCENTS TO FRACTIONS

To change a percent to a fraction, you can drop the percent sign and write the number as the numerator over the denominator 100. Then reduce the fraction to its lowest terms:

Example:

6% = 6/100 = 3/50   160% = 160/100 = 8/5, or 1 3/5

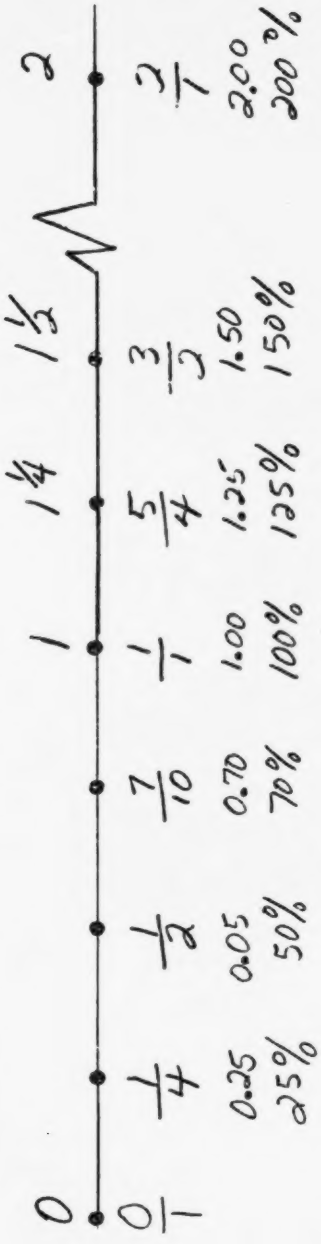
Note: If the percent has a decimal, change the percent to decimal form. Then change the decimal to a fraction:

7.5% = 0.075 = 75/1,000 = 3/40

APPENDIX A

TRANSPARENCY FOR

EQUIVALENCE OF FRACTIONS, DECIMALS, AND PERCENTS


0
0/1
1/4
0.25
25%
1/2
0.05
50%
7/10
0.70
70%
1
1/1
1.00
100%
1 1/4
5/4
1.25
125%
1 1/2
3/2
1.50
150%
2
2/1
2.00
200%

APPENDIX A

TRANSPARENCY FOR 3.[illegible]

FIND A PERCENT OF A NUMBER

To find a percent of a number, multiply the number by the decimal equivalent of the percent.

Example:

To find 4% of 50, you want to find 4 hundredths of 50.

Step 1: Change 4% to a decimal or common fraction.

4% = .04 or 4% = 4/100

Step 2: Multiply 50 by the fraction.

.04 x 50 = 2 or 4/100 x 50/1 = 200/100 = 2

Therefore, 4% of 50 = 2

APPENDIX A

TRANSPARENCY FOR 3.2

FIND WHAT PERCENT ONE NUMBER IS OF ANOTHER

To find what percent one number is of another, divide the one number by the other number and show the quotient as a percent.

Example: 9 is what percent of 16?

Solution	Explanation
$\underline{0.56\ 1/4}$ = 56 1/4% 16)9.00	9 is the part and 16 is the whole with which the part is to be compared. The fraction 9/16 shows the relationship of 9 to 16, which gives 0.56 1/4. The equivalent of 0.56 1/4 is 56 1/4%. 56 1/4% of 16 = 0.56 1/4 x 16 = 9

APPENDIX A

TRANSPARENCY FOR 3.3

FIND A NUMBER WHEN A PERCENT IS KNOWN

Suppose you know that 6 is 25% of some number. What is the number? You can use the process of finding a missing factor to solve this problem.

Step 1: Write the problem in the form 6 = 25% x ?

Step 2: 25% is .25.

Step 3: 6 = .25 x ?

Step 4: Find the missing factor by dividing 6 by .25.

6 divided by .25 = 24

Examples:

$6 = .25 \times N$

$\frac{6}{.25} = \frac{.25X}{.25}$

$\frac{6}{.25} = X$

$24 = X$

$\frac{6}{.25}$

$\frac{6}{.25\,|}$

$\frac{6}{.25\,|}$

$\frac{6}{.25\,|\,6}$

$\overline{.25\,|\,6.}$

$\overline{.2516.00}$

$\overline{25\,|\,600.}$

APPENDIX A

TRANSPARENCY FOR 4.2

THE PERCENTAGE FORMULAS

Before trying to solve application problems that use percentage formulas, it is important to understand the "pieces of the pie" before trying to eat your cake.

In solving percentage problems, there are three key elements:

1. Portion = Base x Rate
2. $\text{Base} = \dfrac{\text{Portion}}{\text{Rate}}$
3. $\text{Rate} = \dfrac{\text{Portion}}{\text{Base}}$

Examples:

I. Finding a portion of a number

Find 16% of 285

Solution

$P = B \times R$

$P = 285 \times .16$

$P = 45.6$

II. Finding the base

160 is 8% of what number?

Solution

$B = \dfrac{P}{R}$ $\qquad B = \dfrac{160}{.08}$ $\qquad B = 2{,}000$

III. Finding the rate

What percent is 35 of 140

Solution

$R = \dfrac{P}{B}$ $\qquad R = \dfrac{35}{140} \quad = \quad .25 = 25\%$

APPENDIX A

LEARNING ACTIVITY FOR 5.2

REDUCING RATIOS TO LOWEST TERMS PROBLEM

Directions: Write each ratio as a fraction reduced to lowest terms.

	KEY:
1. 24 to 28 _____	1. 6/7
2. 10 in. to 24 in. _____	2. 5/12
3. 5 in. to 5 ft. _____	3. 1/12
4. 4 oz. to 1 lb. _____	4. 1/4
5. 1 hr. to 20 min. _____	5. 3/1
6. 2 lbs. to 6 ozs. _____	6. 16/3

APPENDIX A

PERCENTAGES AND RATIOS

PRETEST

Directions: This test will help the teacher determine how well the student can do some of the business-related math skills in this unit.

1. 5.30 written as a percent is ________.
2. .03% written as a decimal is ________.
3. .35% written as a fraction is ________.
4. 4% of 622 = ________.
5. In the sentence "8% of 70 is 5.6," the percentage is ________.
6. If B = $3,000 and R = 7%, P = __________.
7. If P = $42 and R = 6%, B = __________.
8. If P = 60 and B = 400, R = __________.
9. If 8% of a firm's staff are absent, ________ are present.
10. If sales are $80,000 after a $20,000 increase, the rate of increase is __________.

ANSWER KEY:

1. 530%
2. .0003
3. 7/20
4. 24.88
5. 5.6
6. $210
7. $700
8. 15%
9. 92%
10. 33 1/3%

APPENDIX B

UNIT IV TEST

Section I:

A. Write the following fractions as percents.

1. 1/100 = __________
2. 2/100 = __________
3. 26/100 = __________
4. 1/2 = __________
5. 1/4 = __________
6. 1/5 = __________
7. 1/20 = __________
8. 7/10 = __________
9. 1/1 = __________
10. 1 1/4 = __________

B. Write the following decimals as percents.

1. 0.46 = __________
2. 0.08 = __________
3. 0.01 = __________
4. 0.07 = __________
5. 0.1 = __________
6. 0.12 3/4 = __________
7. 0.0036 = __________
8. 2.20 = __________
9. 1.00 = __________
10. 4.56 = __________

Section II:

A. Convert the following decimals to percents. Show all figures on a separate sheet of paper.

1. 0.63 = _____
2. 4.0 = _____
3. 0.07 = _____
4. 3.7 = _____
5. 0.17 = _____

B. Convert percents to decimals.

1. 98% = _____
2. 6% = _____
3. 8.7% = _____

4. 100% = _____

5. 23.8% = _____

C. Convert fractions to percents.

1. 1/2 = _____

2. 1/10 = _____

3. 5/10 = _____

4. 2/5 = _____

5. 3/25 = _____

D. Convert percents to fractions.

1. 12% = _____

2. 14% = _____

3. 0.3% = _____

4. 3% = _____

5. 17% = _____

Section III: Solve the following percentage problems.

A. Find the percent of the following numbers.

1. 3% of $800 = __________

2. 5% of $400 = __________

3. 9% of $200 = __________

4. 15% of $50 = __________

5. 4% of $180 = __________

B. Find the percent a number is of another.

1. 45 is ?% of 180 __________

2. 84 is ?% of 240 __________

3. ?% of $1,400 is $63 __________

4. ?% of 192 is $12 __________

5. $4.80 is ?% of $60 __________

Section III:

C. Find the unknown number.

1. 15% x ? = $120 _____
2. 18% x ? = $36 _____
3. 29% of ? is $95.70 _____
4. $5.39 is 35% of ? _____
5. 46% of 184 is ? _____
6. $5.46 is 21% of ? _____
7. ? is 53% of $106 _____
8. 65% x ? is $24.70 _____
9. $81 = 45% x ? _____
10. $11.20 is 35% of ? _____

Section IV:

A. The Percentage Formula

1. 8 is what per cent of 24?

2. What is 8% of 150?

3. 700 is 40% of what number?

B. Solve by aliquot parts: Show all figures on separate sheet of paper.

1. 800 x .75 _____

2. 1,600 x [illegible] _____

3. 64 x .125 _____

Section V:

A. Write each ratio as a fraction reduced to lowest terms.

1. 24 to 28 _____
2. 27 to 21 _____
3. 44 to 16 _____
4. 8 oz. to 1 lb. _____
5. 1 yd. to 2 ft. _____
6. 1 hr. to 20 min. _____

B. Application Problems

1. In a group of 35 students, the ratio of juniors to seniors is 2 to 3. How many juniors are there in the group?

2. The ratio of electric to manual typewriters in an office is 5:1. If there are 12 typewriters, how many are electric?

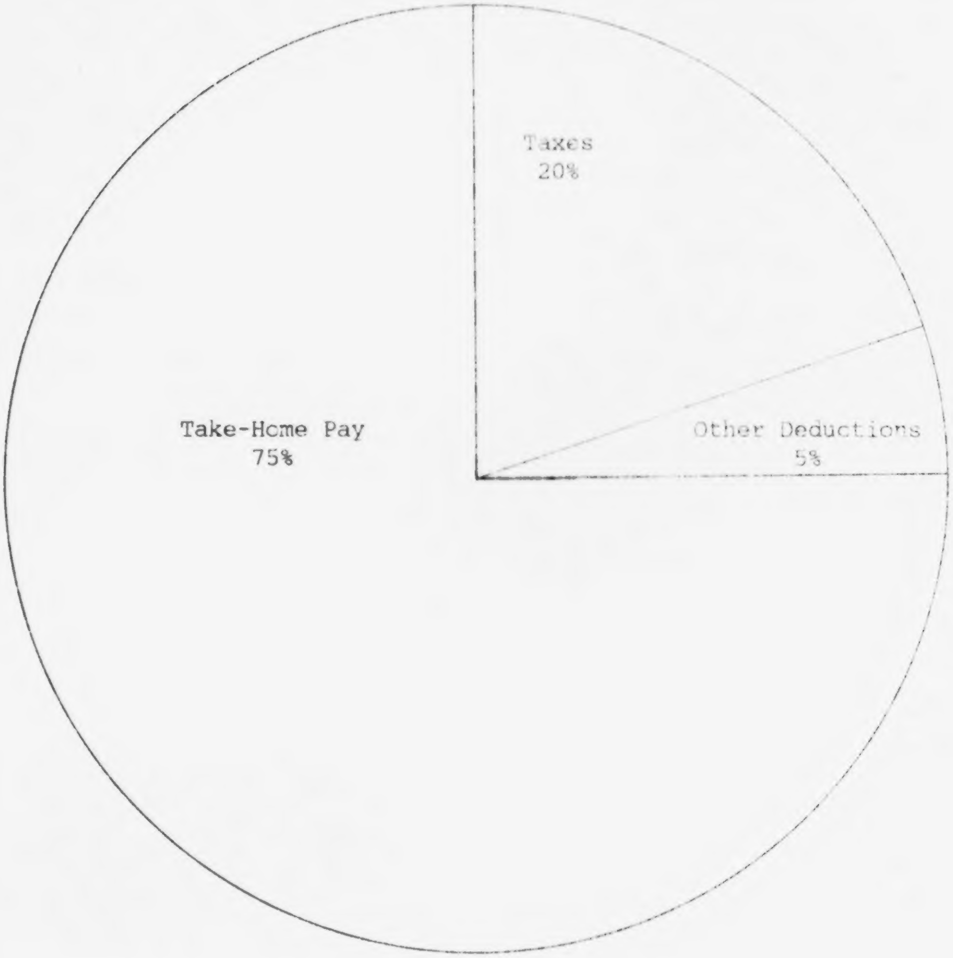
Section VI: Graphs

The graph below shows Ken's withholdings and net pay for his weekly earnings.

1. How much of Ken's weekly earnings of $300 goes for taxes? ______

2. How much of Ken's earnings goes for other withholdings? ______

3. How much does Ken have in take-home pay each week? ______



APPENDIX B

UNIT IV

TEST KEYS

Section I:

A. 1. 1%
2. 2%
3. 26%
4. 50%
5. 25%
6. 20%
7. 5%
8. 70%
9. 100%
10. 125%

B. 1. 46%
2. 8%
3. 1%
4. 70%
5. 10%
6. 12 3/4%
7. 0.36%
8. 220%
9. 100%
10. 456%

Section II:

A. 1. 63%
2. 400%
3. 7%
4. 370%
5. 17%
6. 0.5%
7. 726%
8. 3.4%
9. 24.8%
10. 55 1/2%

B. 1. 0.98
2. 0.06
3. 0.087
4. 1
5. 0.238
6. 0.005
7. 7.5
8. 0.009
9. 0.01 1/2
10. 0.00 1/4

Section II:

C. 1. 50%
2. 10%
3. 50%
4. 40%
5. 12%
6. 14%
7. 70%
8. 24%
9. 26%
10. 100%

D. 1. 3/25
2. 7/50
3. 3/1000
4. 3/100
5. 17/100
6. 13/1000
7. 11/25
8. 1/20
9. 7/1000
10. 9/10

Section III:

A. 1. $24
2. $20
3. $18
4. $7.50
5. $7.20
6. $6.60
7. $60.80
8. $68
9. $3.25
10. $530

B. 1. 25%
2. 35%
3. 4 1/2%
4. 6 1/4%
5. 8%
6. 12 1/2%
7. 6 2/3%
8. 500%
9. 400%
10. 33 1/3%

Section III:

C. 1. $800
2. $200
3. $330
4. $15.40
5. $84.64
6. $26
7. $56.18
8. $38
9. $180
10. $32

Section IV:

A. 1. 33.33%
2. 12
3. 875

B. 1. 200
2. 600
3. 5.5

Section V:

A. 1. 6/7
2. 9/7
3. 11/4
4. 1/4
5. 9/2
6. 3/1

B. 1. 14
2. 50

Section VI:

1. $60
2. $15
3. $225

APPENDIX C

EVALUATION AND TESTING

Ways to Evaluate Pupil Growth

1. Class Participation

2. Quizzes

3. Business Application Problems

4. Homework

5. Class Assignments

6. Unit Test

EQUIPMENT AND SUPPLIES

Student:

1. Textbook/Workbook
2. Notebook
3. Calculator
4. Graph Paper

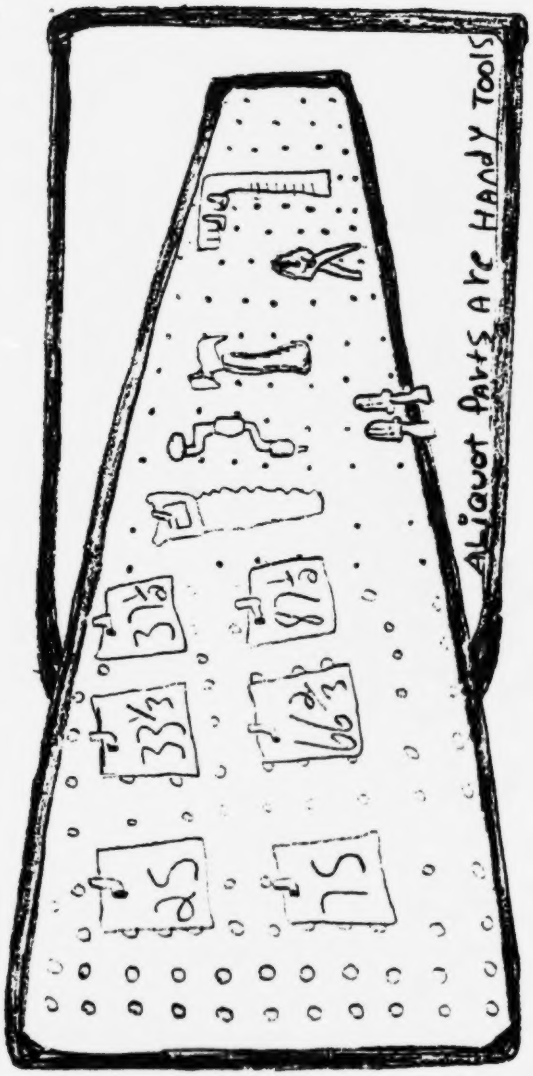
Teacher:

1. Textbook and Manual
2. Overhead Projector
3. Transparencies
4. Bulletin Board Supplies
5. Sample Problems
6. Worksheets
7. Business Forms
8. Conversion Charts
9. Handouts
10. Calculator

APPENDIX D

BULLETIN BOARD IDEA

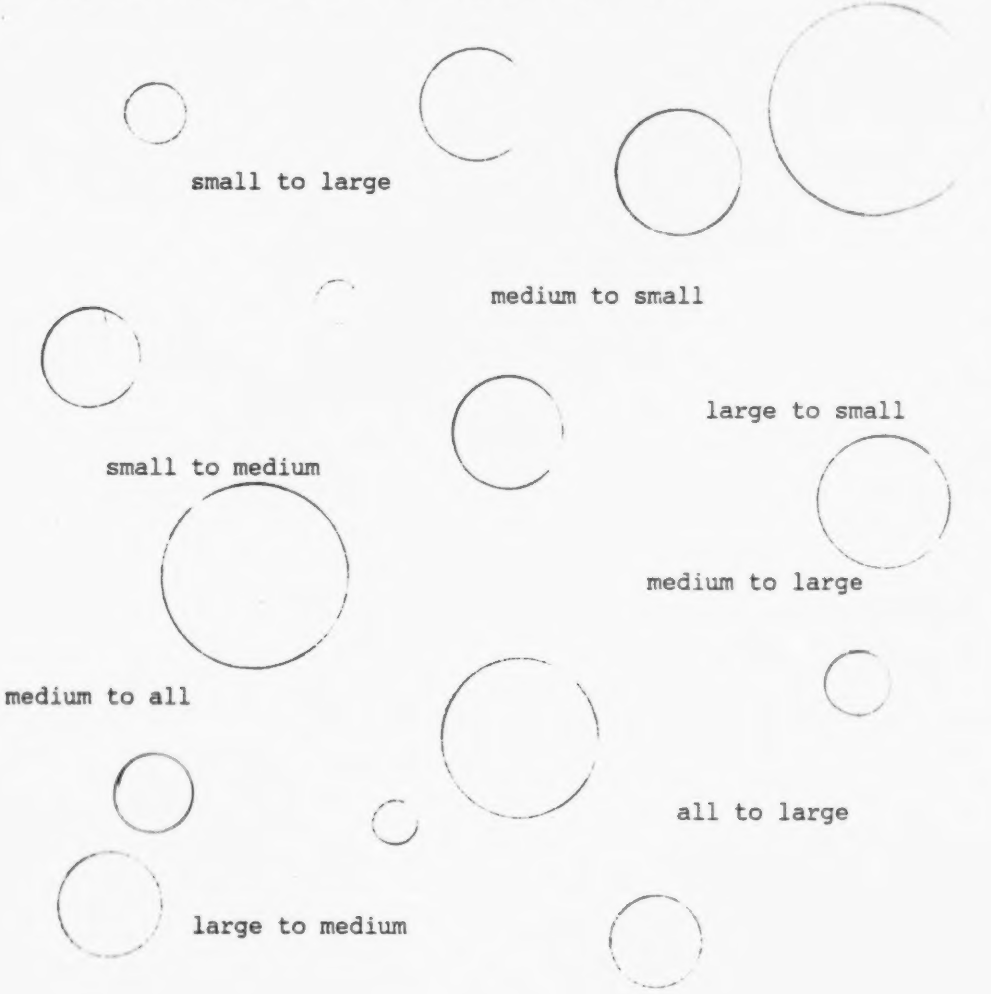
ALIQUOT PARTS OF A WHOLE


Aliquot Parts are Handy Tools
37½
87½
33⅓
66⅔
25
75

APPENDIX D

BULLETIN BOARD IDEA

This simple board is a colorful, understandable illustration that is useful in introducing the idea of ratio. After the discs are compared in size and color, they can be compared by number.


small to large
medium to small
large to small
small to medium
medium to large
medium to all
all to large
large to medium

RATIO IS COMPARING

APPENDIX E

SUPPLEMENTAL MATERIALS

Books

Dansby, Robert L., and Burton S. Kaliski. (1987). Business Mathematics. San Diego, California: Harcourt Brace Jovanovich, Publishers.

Fairbank, Roswell E., and Robert A. Schultheis. (1980). Mathematics For the Consumer. Dallas, Texas: South-Western Publishing Company.

Lange, Walter H., Robert D. Mason, and Temoleon G. Rousos. (1984). Business Mathematics. Boston, Massachusetts: Houghton Mifflin Company.

Lanford, Francis G. (1981). Consumer Mathematics. Dallas, Texas:

Johnson, Thomas A., Carole Shepard Lissy, and James K. Seeck. (1985). Business Math Today. Dubuque, Iowa: William C. Brown Publishers.

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"Keeping in Proportion" from Adult Math - A Series,
"The Percentage Revolution" from Adult Math - A Series,
"Playing the Percentages" from Adult Math - A Series,
(3/4 or 1/2 inch video cassette, 30 minutes)
KY Educational Television, Network Center, 600 Cooper Drive,
Lexington, KY 40502

"The Case of the Ground-Up Graphs" from the Counterplot Series,
"The Case of the Pony Proportion" from the Counterplot Series,
"The Case of the Powerful Percent" from the Counterplot Series,
(3/4 or 1/2 inch video cassette, 19 minutes)
Agency for Instructional Technology, Box A, Bloomington, IN 47402

"Maps, Charts, and Tables" from the Math Wise - A Series,
"Percent" from the Math-Wise -A Series,
"Proportion" from the Math-Wise - A Series,
(3/4 or 1/2 inch video cassette, 16 mm. film, 15 minutes)
KOCI-TV, Coast Community College District, P>O> Box 2476,
Huntington Beach, CA 92647

"Ratios and Proportions" from Using Mathematics In the Plant-A Series,
(1/2 or 3/4 inch video cassette, 12 minutes)
TPC Training Systems, 1301 South Grove Avenue, P.O. Box 1030,
Barrington, IL 60010

"Understanding the Business World and Stocks",
(1/2 inch Video Cassette BETA/VHS, 58 minutes)
Morris Home Video, 413 Avenue G, Redondo Beach, CA 90277

UNIT V

BANKING AND MONEY RECORDS

INTRODUCTION

More than ever before, people need to understand the economic world in which they work and live. Even though we live in an age of computers, advanced technology, and electronics, we need to have a basic understanding of banking and money records, which is important in one's personal and vocational life. Technological advances have made money and banking records more complicated than they once were. Skill in managing money, both in business and in one's personal life, is more important now than ever because of these changes.

This unit will provide the student with an understanding of banking and money records such as checking accounts, savings accounts, and petty cash records. Upon successful completion of this unit, the student will have mastered the necessary business-related math skills needed for keeping banking and money records.

COMPETENCIES

1. Open a checking account and prepare deposits.
2. Endorse checks correctly.
3. Prepare checks and complete a checkbook.
4. Identify check clearance procedures.
5. Identify the various types of electronic funds transfers.
6. Reconcile checkbooks and bank statements.
7. Complete deposit, withdrawal, and passbook for savings accounts.
8. Compute simple and/or compound interest by hand, by calculator, or from a table.
9. Maintain petty cash and records.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Demonstrate a basic understanding of personal and business banking procedures.
2. Correctly apply techniques for maintaining a checking account.

3. Develop an awareness of the types of savings accounts and how interest is figured.

4. Apply techniques for establishing and replenishing a petty cash fund.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to identify correctly the terminology for filling out a deposit slip with 80 percent accuracy.

1.2. The student will fill out a signature card correctly.

1.3. Given an exercise in preparing deposit slips, the student will be able to complete the work with 100 percent accuracy.

1.4. Given a deposit amount, the student will enter correctly the amount of deposit on the stub or register.

2.1. The student will be able to identify correctly the terminology for endorsing checks with 100 percent accuracy.

2.2. Given an application exercise in endorsing checks, the student will be able to endorse correctly four checks with 75 percent accuracy.

3.1. The student will be able to identify correctly the terminology for writing checks with 90 percent accuracy.

3.2. Given an exercise in checkwriting, the student will be able to write each check and fill out the stub correctly with 100 percent accuracy.

3.3. In an exercise in checkwriting, the student will void correctly a check with 100 percent accuracy.

4.1. The student will be able to identify correctly the terminology of check clearance with 100 percent accuracy.

4.2. Given a business application problem on how checks are cleared in different geographic areas, the student will be able to complete correctly the exercise with 75 percent accuracy.

5.1. The student will be able to identify correctly the terminology of electronic funds transfers with 75 percent accuracy.

5.2. Given an application exercise on electronic systems now in use and other electronic bank services, the student will be able to complete the exercise with 80 percent accuracy.

6.1. The student will be able to identify correctly the terminology of reconciling bank statements and checkbooks with 80 percent accuracy.

6.2. Given an exercise using a bank statement and a check register (or stubs), the student will reconcile correctly the bank balance with 100 percent accuracy.

7.1. The student will be able to identify correctly the terminology for filling out deposit and withdrawal forms for a savings account with 100 percent accuracy.

7.2. Given an application problem, the student will complete the problem showing deposits, withdrawals, and balance in a passbook form with 100 percent accuracy.

8.1. The student will be able to identify correctly the terminology for simple and compound interest with 80 percent accuracy.

8.2. Given an exercise in computing simple and/or compound interest, the student will complete the exercise by hand or calculator with 90 percent accuracy.

8.3. Given an exercise in computing simple and/or compound interest using interest tables, the student will complete the exercise with 90 percent accuracy.

9.1. The student will be able to identify correctly the terminology for petty cash with 100 percent accuracy.

9.2. Given an application exercise in establishing and replenishing a petty cash fund, the student will complete the exercise with 90 percent accuracy.

METHODOLOGY

This unit introduces the student to money and banking records. The student will learn how to make a deposit, write checks, balance and reconcile the checkbook with a bank statement, check clearance procedures, operate electronic funds transfer systems, figure simple and compound interest on saving accounts, and establish, replenish, and make payments from the petty cash fund.

Textbooks, business forms and problems, simulations, teaching transparencies, sound filmstrips, visual aids, guest speakers, and field trips will be used in this unit.

There are two section posttests provided with answer keys. The teacher may select items from each section test to make one unit test to be given upon completion of Unit V. Many vocabulary terms are necessary in this unit because the student must have a working knowledge of these terms in order to handle money and banking records. If desired, the teacher may administer several small vocabulary quizzes during the unit.

The accuracy levels suggested in the specific performance objectives may be adjusted to suit the individual teacher's desires or the requirements of the school system.

SUGGESTED INTEREST APPROACHES

1. Show filmstrip "Banking Is," which is free through many local banks. The address is National Learning Productions, Inc., 505 6th Avenue, P. O. Box 246, St. Albans, WV 25177-0246. The entire program may be used to provide an introduction to the banking industry and the money management skills that are required for functioning in our economy.

   The program includes:

   a. A 35mm filmstrip and cassette.
   b. Twelve overhead transparencies.
   c. An optional "Banking Is" software package.
   d. An instructor's guide.
   e. Student study guide (one per student).
   f. Student checkset (one per student).
   g. An example quiz and filmstrip narration.

   Toll free number is 1-800-624-8287. Topics included in the program are:

   a. An introduction to economics.
   b. How financial institutions are organized and operate.
   c. Personal budgeting.
   d. Electronic banking.
   e. Checking.
   f. Savings.
   g. Lending.
   h. Other services and future trends.

2. Take students on a field trip to a local bank. Local banks are helpful in arranging tours. Tell the bank public relations person in advance what aspects of the bank you would like for the students to see. Ask the representative to be sure that students see the modern machinery, different career people at work, etc.

3. Have the student prepare a report on the services that are offered by a local bank. They could call or visit the local bank and collect information, then compose a report on their findings. Also, students might be challenged to a poster

contest on local banking services. They could collect pamphlets and information from local banks and make a poster showing these services.

4. Have role playing where the students act as teller of a bank and the bank customers. Rotate so that all students get to be a teller. Use monopoly money and teacher-prepared paychecks, etc., to deposit.

5. While teaching the section on petty cash, divide students into groups of three and let one student be responsible for making payments from petty cash and the other two students be the persons who are being paid. Have students fill out paid out vouchers, etc.

6. Have students contact local financial institutions (banks, savings and loan, etc.) to get information on Certificates of Deposit and Money Market Certificates. Write a report on these two special types of savings plans.

UNIT V OUTLINE

BANKING AND MONEY RECORDS

I. Checking Accounts
    A. Check writing
        1. Opening a checking account
            a. Terminology
                1. Deposit
                2. Checking account
                3. Depositor
                4. Signature card
                5. Deposit slip
                6. ABA numbers
                7. FDIC
                8. Check stub or register
            b. Signature card
            c. Deposit slip
            d. Business application problem
        2. Endorsing checks
            a. Terminology
                1. Endorsement
                2. Blank endorsement
                3. Full or special endorsement
                4. Restrictive endorsement
            b. Business application problem
        3. Writing checks
            a. Terminology
                1. Check
                2. Drawer
                3. Drawee

      4. Payee
      5. Dishonored check
      6. Forged check
      7. Voided check
      8. Stopping payment on check
      9. Postdated check
    b. Completing stub or register
    c. Steps in writing check
    d. Precautions when writing checks
    e. Voiding checks
    f. Business application problem
  4. Simulation problem on check writing
  5. Check clearance
    a. Terminology
      1. Clearing checks
      2. Clearinghouse
    b. Application quiz
B. Electronic funds transfers
  1. Terminology
    a. Electronic banking
    b. Electronic funds transfers
    c. Automated teller machines
    d. Proprietary systems
    e. Shared systems
    f. Automated clearinghouses
  2. Current systems
  3. Other electronic banking services
  4. Business application problem
C. Bank statements
  1. Terminology
    a. Bank statements
    b. Outstanding checks
    c. Outstanding deposits
    d. Service charge
    e. Canceled checks
    f. Reconciling bank statement
    g. NSF check
  2. Parts of bank statement
  3. Reconciliation of the bank statement and the checkbook
  4. Business application problem

II. Savings Accounts

A. Deposits and withdrawals
  1. Terminology
    a. Savings account
    b. Withdrawal
    c. Passbook
    d. Deposit
  2. Sample deposit ticket, withdrawal form, and passbook
  3. Business application problem

- B. Interest
  - 1. Terminology
    - a. Interest
    - b. Compounding
    - c. Interest tables
    - d. Semiannually
    - e. Quarterly
    - f. Minimum balance
  - 2. Simple interest
  - 3. Compound interest
  - 4. Business application problem

III. Petty Cash

- A. Terminology
  - 1. Petty cash
  - 2. Replenishing petty cash
  - 3. Voucher
- B. Establishing petty cash fund
- C. Making payments from petty cash
- D. Replenishing petty cash
- E. Business application problem

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to correctly identify the terminology for filling out a deposit slip with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: deposit checking account depositor signature card deposit slip ABA numbers FDIC check stub or register	1. Define a list of vocabulary words using textbook. 2. Check accuracy of definitions during oral discussion.

1.2. The student will fill out a signature card correctly.

Subject Matter Content	Learning Activities
Opening a checking account	1. Observe textbook samples of signature cards.

signature card samples from local banks	2. View transparency on signature card as teacher explains. (Appendix A, 1.2) 3. Complete sample signature card as teacher observes activity.

1.3. Given an exercise in preparing deposit slips, the student will be able to complete the work with 100 percent accuracy.

Subject Matter Content	Learning Activities
Deposit slip	1. Read textbook pages covering the deposit slip. 2. View teacher-made transparency as teacher fills out a deposit slip form. 3. Complete a deposit slip provided by the teacher.

1.4. Given a deposit amount, the student will correctly enter the amount of deposit on the stub or register.

Subject Matter Content	Learning Activities
Steps for entering deposit amount in the checkbook	1. Observe teacher's transparency or chalkboard demonstration on the correct method for entering deposit in checkbook. 2. Enter deposit amount from deposit slip used in Objective 1.3, Learning Activity 3 on check stub (or register) provided by the teacher. 3. Add a list of teacher-prepared deposit amounts, then enter into checkbook.

2.1. The student will be able to correctly identify the terminology for endorsing checks with 100 percent accuracy on a unit test.

Subject Matter Content

Terminology:
- endorsement
- blank endorsement
- full or special endorsement
- restrictive endorsement

Learning Activities

1. Read textbook pages covering endorsements, study examples, record definitions in notebook.
2. Record notes as teacher explains terms.

2.2. Given an application exercise in endorsing checks, the student will be able to correctly endorse four checks with 75 percent accuracy.

Subject Matter Content

Types of endorsements and when each is used

Learning Activities

1. View transparency as teacher explains when each type is used. (Appendix A, 2.2)
2. Complete an application exercise prepared by the teacher containing four situations requiring the student to decide what type endorsement should be used.

3.1. The student will be able to correctly identify the terminology for writing checks with 90 percent accuracy on a unit test.

Subject Matter Content

Terminology:
- check
- drawer
- drawee
- payee
- dishonored check
- forged check
- voided check
- stopping payment on a check
- postdated check

Learning Activities

1. Record definitions in notebook from text.
2. Check accuracy of definitions as teacher explains terms.
3. View bulletin board or transparency showing parts of check. (Appendix D)

3.2. Given an exercise in checkwriting, the student will be able to write each check and fill out the check stub correctly with 100 percent accuracy.

Subject Matter Content	Learning Activities
Check writing procedures check check stub/register precautions when writing checks	1. Read text covering check-writing procedures; observe examples. 2. View teacher's chalkboard or transparency demonstration on the steps in writing a check and a stub (register). 3. Record notes as teacher explains precautions to observe when writing checks. 4. Complete a teacher-prepared exercise in writing four checks and check stubs correctly.

3.3. In an exercise in checkwriting, the student will correctly void a check with 100 percent accuracy.

Subject Matter Content	Learning Activities
Voiding a check	1. Record notes as teacher explains. 2. Read textbook material on voiding checks. 3. Complete business application problem prepared by the teacher in which student correctly voids a check. 4. Complete simulation exercise covering all topics from making deposits through writing checks. (Teacher-made exercise or simulation from workbook). Retain this exercise for use in 6.2. 5. Take Section I Test. (Appendix B)

4.1. The student will be able to correctly identify the terminology of check clearance with 100 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: clearing checks clearinghouse	1. Record definitions from textbook pages covering check clearance. 2. Record notes as teacher explains use of terms.

4.2. Given a business application problem on how checks are cleared in different geographic areas, the student will be able to correctly complete the exercise with 75 percent accuracy.

Subject Matter Content	Learning Activities
Various checking clearance processes for different geographic areas	1. View transparency on check clearance as teacher explains. (Appendix A, 4.2) 2. Record notes from teacher explanation and from textbook pages covering topic. 3. Complete application problem prepared by the teacher in which the student must describe how checks are cleared in different geographic areas.

5.1. The student will be able to correctly identify the terminology of electronic funds transfers with 75 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: electronic banking electronic funds transfers automated teller machines proprietary systems shared systems automated clearinghouse	1. Read pages covering this topic in student study guide that accompanies banking simulation material such as "Banking Is." Refer to Appendix E. 2. Record notes as a guest speaker or teacher explains terms.

5.2. Given an application exercise on electronic systems now in use and other electronic bank services, the student will be able to complete the exercise with 80 percent accuracy.

Subject Matter Content	Learning Activities
Electronic systems current systems other electronic bank services	1. Record notes as guest speaker (bank representative) or teacher explains electronic bank services and systems currently in use. 2. View transparency on automated teller machine and how it operates (Appendix A, 5.2) 3. Complete teacher-prepared application problem on electronic systems.

6.1. The student will be able to correctly identify the terminology of reconciling bank statements and checkbooks with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: bank statements outstanding checks outstanding deposits service charge canceled checks reconciling bank statement NSF check	1. Read text covering bank statements; record definitions of terms in notebook. 2. View teacher's presentation on reconciling bank statement.

6.2. Given an application exercise using a bank statement and a check register (or stub), the student will correctly reconcile the bank balance with 100 percent accuracy.

Subject Matter Content	Learning Activities
Reconciliation of bank statement Identification of parts	1. View teacher's presentation on how to reconcile bank balance with checkbook balance.

Reconciliation procedures 1. bank statement 2. checkbook Service charges	2. View transparency of actual reconciliation form as teacher demonstrates steps in reconciling bank balance with checkbook. (Appendix A, 6.2) 3. Complete application problem in which the student reconciles a bank balance with checkbook balance (use the checkbook balance from problem in Objective 3.3, Learning Activity 4).

7.1. The student will be able to correctly identify the terminology for filling out deposit and withdrawal forms for a savings account with 100 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: savings account withdrawal passbook deposit	1. Record terms from reading text assignment covering topic. 2. Listen as teacher explains terms. 3. Observe sample blank withdrawal and deposit forms obtained from a local bank as they are passed around or as displayed on bulletin board. (Appendix D)

7.2. Given an application problem, the student will complete the problem showing deposits, withdrawals, and balance in a passbook form with 100 percent accuracy.

Subject Matter Content	Learning Activities
Savings account forms	1. View teacher-prepared transparency showing sample passbook page with deposits, withdrawals, and balance. 2. Complete correctly business application problem selected by the teacher showing deposits, withdrawals, and passbook balance.

8.1. The student will be able to correctly identify the terminology for simple and compound interest with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: interest compounding interest tables semiannually quarterly minimum balance	1. Define a list of vocabulary words using textbook. 2. Check accuracy of definitions during oral discussion.

8.2. Given an exercise in computing simple and/or compound interest, the student will complete the exercise by hand or calculator with 90 percent accuracy.

Subject Matter Content	Learning Activities
Simple and compound interest How to compute By hand By calculator	1. Review basic math skills--multiplication of fractions and percents. 2. View chalkboard as teacher explains how to figure simple and/or compound interest by hand or by calculator. 3. Compute teacher-prepared drill for simple interest and/or compound interest. 4. Complete teacher-prepared application exercise in figuring simple and/or compound interest by hand or by calculator.

8.3. Given an application exercise in computing simple and/or compound interest using interest tables, the student will complete the exercise with 90 percent accuracy.

Subject Matter Content	Learning Activities
Simple and compound interest computation Interest tables	1. View teacher-prepared transparency as teacher explains how to use interest tables.

2. Work teacher-made drill problems for practice.

3. Complete teacher-prepared application exercise in figuring simple and/or compound interest using tables.

9.1. The student will be able to correctly identify the terminology for petty cash with 100 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: petty cash replenishing petty cash voucher	1. Read text and record terms. 2. Listen as teacher explains terms.

9.2. Given an application exercise in establishing and replenishing a petty cash fund, the student will complete the exercise with 90 percent accuracy.

Subject Matter Content	Learning Activities
Steps on how to establish, pay out, and replenish petty cash	1. View teacher's presentation on how to establish a petty cash fund. 2. Observe how a paid-out voucher is filled out from text (or teacher-made) sample. 3. Listen as teacher explains how petty cash is replenished. 4. Complete an application exercise prepared by the teacher in which the student establishes a petty cash fund, fills out paid-out vouchers, and replenishes the fund.

5. Participate in role playing in groups of three, taking turns being the person in charge of petty cash.

6. Take Section II Test. (Appendix B)

APPENDIX A

TRANSPARENCY FOR 1.2

SIGNATURE CARD

Assume that you want to open a checking account at Central Branch of Kellwood National Bank. You plan to deposit your earnings from your part-time job as salesperson at ABC Co. The account will be yours alone. First deposit will be $50.00. The new account clerk asks you to fill out both sides of the signature card below. Your new account will be 1-234-5678. Do not leave blank any question which applies to you. You may write "None" or draw a line in a blank to show that you read the question. Do not write in blanks reserved for bank officers.

KELLWOOD NATIONAL
Checking Account
○ Joint
○ Individual

Signature ______________________

Signature ______________________

______________________ or ______________________
(Print or type name(s))

Address ______ City, State ______ ZIP CODE ______ How long? ______

Home phone ______________________

Drivers License No./State ______________________

Payable on death of depositer to the following survivors:

Print or type name (May list parents)

Office______________________ Date______________________

S.S.#______________________ Account Number______________________

(Front)

Employed by______________________ How long?_____ Phone___________

Present Position__________________ Bus. Address__________________

Military Address____

Relationship of Joint Tenants_____ Nearest Relative__________________

Previous Employer__________________ Former Residence__________________

Former bank account (Office and City)______________________

Initial Deposit ○ Cash $_____ ○ Checks $______________ ABA Number(s)

Personal Reference____

(Back)

APPENDIX A

TRANSPARENCY FOR 2.2

ENDORSEMENTS

(Teacher will illustrate each style as he/she explains endorsements.)

Blank

Special or Full

Restrictive

APPENDIX A

TRANSPARENCY FOR 4.2

CHECK CLEARANCE

I. Paths followed by checks in a small town:

A. Checks deposited in drawer's bank:

Drawer → Payee → Added to payee's account →
Subtracted from drawer's account → Drawer.

B. Checks not deposited in drawer's bank:

Drawer → Payee → Payee's bank →
Drawer's bank → Drawer.

II. Path followed by checks in large cities with a number of banks:

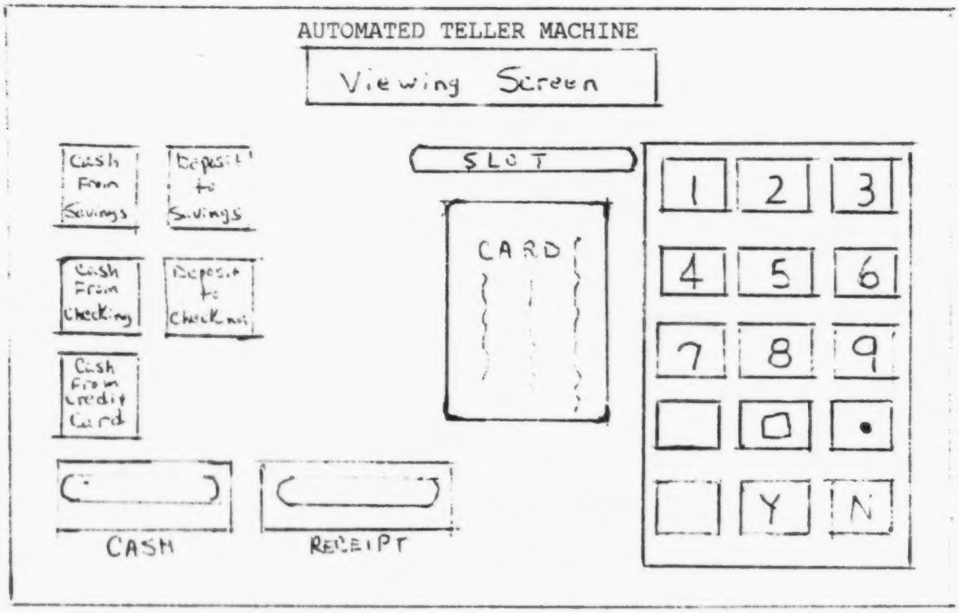
Drawer → Payee → Payee's bank →
Clearinghouse → Drawer's bank → Drawer.

III. Paths followed by checks traveling between cities:

Drawer → Payee → Payee's bank →
Federal Reserve System → Bank →
Drawer's bank → Drawer.

APPENDIX A

TRANSPARENCY FOR 5.2


AUTOMATED TELLER MACHINE
Viewing Screen
Cash From Savings
Deposit to Savings
Cash From Checking
Deposit to Checking
Cash From Credit Card
SLOT
CARD
1
2
3
4
5
6
7
8
9
0
•
Y
N
CASH
RECEIPT

Step 1 Insert your card into the automated teller machine.

Step 2 The machine then flashes these instructions on the viewing screen: Enter your identification number.

Step 3 You punch in your identification number. 7 0 8 9

Step 4 Select a transaction. Cash From Savings

Step 5 Enter Amount 4 0 . 0 0

Step 6 $40.00 cash from savings. Is that correct? YES

Your request is being processed.

Step 7 Money comes out slot marked "Cash."

Step 8 Do you wish to perform another transaction? NO

Thank you.

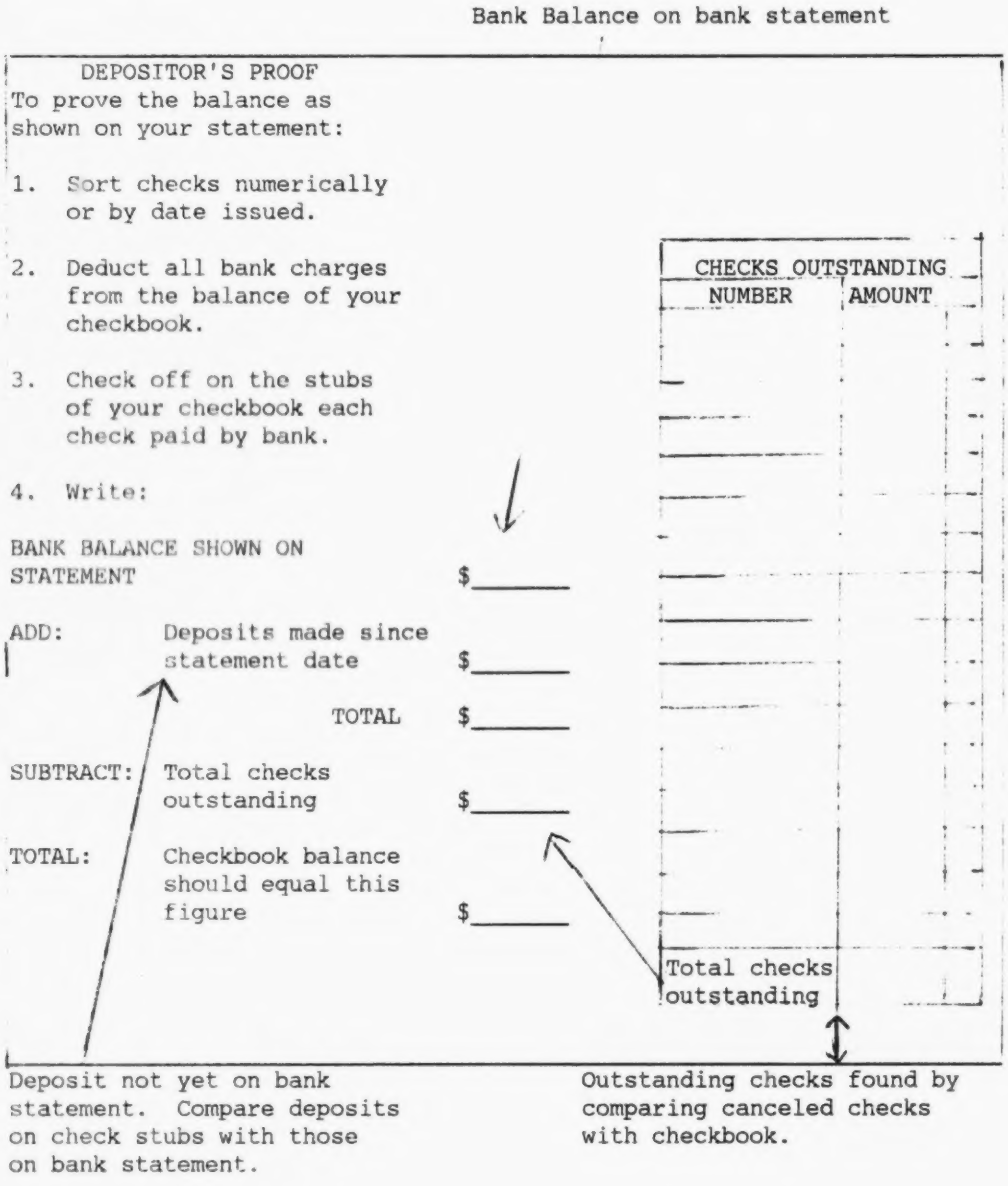
Step 9 Your card and transaction receipt are dispensed from the machine.

APPENDIX A

TRANSPARENCY FOR 6.2

TYPICAL RECONCILIATION FORM

FOUND ON BACK OF YOUR BANK STATEMENT



Bank Balance on bank statement

DEPOSITOR'S PROOF

To prove the balance as shown on your statement:

1. Sort checks numerically or by date issued.
2. Deduct all bank charges from the balance of your checkbook.
3. Check off on the stubs of your checkbook each check paid by bank.
4. Write:

BANK BALANCE SHOWN ON STATEMENT $______

ADD: Deposits made since statement date $______

TOTAL $______

SUBTRACT: Total checks outstanding $______

TOTAL: Checkbook balance should equal this figure $______

CHECKS OUTSTANDING	
NUMBER	AMOUNT
Total checks outstanding	

Deposit not yet on bank statement. Compare deposits on check stubs with those on bank statement.

Outstanding checks found by comparing canceled checks with checkbook.

APPENDIX B

BANKING AND MONEY RECORDS

PRETEST

PART A: Matching--In the answers column at the left, print the letter of the term in Column 2 that matches the statement in Column 1.

_____ 1. A bound book containing stubs or a register and unused checks.

_____ 2. Money placed in a bank account by a customer.

_____ 3. A bank account against which a depositor may write checks.

_____ 4. A depositor's record of deposits made and of checks written attached to the check.

_____ 5. A federal agency that guarantees bank deposits up to $40,000 for each account.

_____ 6. A bank account against which two or more people write checks.

_____ 7. Instructing the bank not to make payment on a check.

_____ 8. An amount paid for the use of money.

_____ 9. A check signed by someone without the authority to do so.

_____10. A person who signs a check.

_____11. A check dated later than the date of issue.

_____12. A bank account on which interest is paid.

_____13. A number assigned to each bank by the American Bankers Association.

_____14. Writing on the back of a check which transfers ownership of the check.

a. check stubs
b. forged check
c. register
d. payee
e. drawee
f. savings account
g. drawer
h. checking account
i. signature card
j. ABA number
k. deposit slip
l. stopping payment on a check
m. passbook
n. clearing checks
o. raised check
p. postdated check
q. joint account
r. interest
s. register
t. endorsement
u. checkbook
v. deposit
w. check projector
x. FDIC
y. petty cash
z. individual account

_____15. A check whose amount was increased by a dishonest person.

_____16. A form not attached to the checks on which a depositor keeps a record of checks written and deposits made.

_____17. A person to whom a check is made payable.

_____18. Money kept in a fund that is used to make small payments in cash.

_____19. A form used to show savings account balance after each deposit and withdrawal.

_____20. The process of paying checks and deducting them from the depositor's account.

PART B: Yes or No Test--Indicate your answer by drawing a line under yes or no at the right.

1. May a depositor write a check on a checking account? YES NO
2. Is a check a receipt for money deposited in a bank? YES NO
3. Do banks recommend that depositors use nicknames when writing checks? YES NO
4. Is writing a check for more money than you have in your account called forgery? YES NO
5. If you make an error in writing a check, should you erase and correct it? YES NO
6. Is interest paid on a savings account? YES NO
7. Is petty cash money that a depositor keeps in his checking account for small payments of cash? YES NO
8. Does the FDIC insure bank deposits up to $40,000? YES NO
9. Is it wise to postdate checks? YES NO
10. Should you write checks on forms other than those supplied by your bank? YES NO
11. Is interest on a savings account figured by multiplying the amount borrowed by the time? YES NO

12. Is there only one type of endorsement? YES NO

13. Is the automated teller machine a type of electronic banking? YES NO

14. Is a withdrawal money that is taken out of a checking account? YES NO

15. Is the amount of a check written in both words and figures? YES NO

APPENDIX B

POSTTEST

Section I Test

BANKING AND MONEY RECORDS

PART A: Completion--An important term has been omitted from each of the following statements. Write in the blank the word or words needed to complete each sentence.

1. A person who signs a check is the ____________.
2. A check dated later than the date of issue is a ____________.
3. Money placed in a bank account by a customer is a ____________.
4. A depositor's record of deposits made and checks written that is attached to the check is called a ____________.
5. A federal agency that guarantees bank deposits up to $40,000 for each account is the ____________.
6. A bank account against which a depositor may write checks is called a ____________.
7. A form not attached to the checks on which a depositor keeps a record of checks written and deposits made is called the ____________.
8. A form used when making a deposit is called a ____________.
9. The person who makes deposits in a bank is called a ____________.
10. Writing on the back of a check which transfers ownership of the check is called an ____________.
11. A form which the owner of a checking account uses to tell the bank to pay money out of his account is called a ____________.
12. The bank against which a check is written is called the ____________.
13. The person to whom a check is written is called the ____________.
14. The procedure by which a bank pays a check and deducts the amount from a depositor's account is called ____________.

15. A central business in a large city which clears checks for all the banks in that city is called a ______________.

16. A check on which the signature is not that of the depositor is called a ? check. ______________.

17. Numbers assigned to each bank by the American Bankers Association are called ______________.

18. A card which the depositor fills out when he/she opens a checking account is the ______________.

19. A type of endorsement which is used to safely mail a deposit to the bank is the ? endorsement. ______________.

20. A type of endorsement which contains only the name of the endorser is called ______________.

21. A type of endorsement which contains the name of the person or company that the check is being transferred to plus the name of the endorser is ______________.

22. When you make a mistake on a check, the correct procedure is to ? the check and write another one. ______________.

23. Instructing the bank not to make payment on a check is called ______________.

24. A check which the bank refuses to pay is called a ______________.

PART B: Yes or No--After each statement below, indicate your answer by drawing a line under yes or no at the right.

1. Will banks honor checks that are written for amounts that are less than $1? YES NO

2. Is writing a check for more money than you have in your account called dishonoring a check? YES NO

3. If you make an error when writing a check, should you write void across the check and then write another check? YES NO

4. On the deposit slips, are checks listed separately from cash? YES NO

5. Are almost all banks members of the FDIC? YES NO

6. Should Joseph Jones sign his checks "Joe Jones?" YES NO

7. Is the amount of the check written twice on the check? YES NO

8. Is the [illegible] time of
the [illegible] YES NO

9. Should [illegible]
and the [illegible] YES NO

10. Can a check [illegible] other than
the payee [illegible] YES NO

11. Are checks [illegible] cleared in
the same [illegible] are cleared? YES NO

12. Is [illegible] YES NO

13. If a [illegible]
[illegible] YES NO

14. Should a [illegible]
signature [illegible] YES NO

15. Can you [illegible] YES NO

16. Can a [illegible]
transferred [illegible] YES NO

17. Is a [illegible]
the [illegible] YES NO

18. Are [illegible]
deposit [illegible] YES NO

19. Should a [illegible]
deposit [illegible] YES NO

20. Is a [illegible]
[illegible] YES NO

21. Is the [illegible] check
balance [illegible] YES NO

22. Should the [illegible] date
written [illegible] YES NO

23. Does the [illegible] and a check
register [illegible] YES NO

24. May a [illegible] YES NO

25. Does a [illegible] every
time [illegible] YES NO

26. Is the [illegible] the balance
on the [illegible] YES NO

PART C: Completion

1. Briefly describe how checks are cleared:

    a. In the same bank

    b. Between banks in different towns

    c. Between banks in a large city

    d. Between cities

2. In each situation below, tell which type of endorsement would be best to use: restrictive, full, or blank.

    a. Jeff Jones wrote a check to Ann Murray. Ann is standing in the store and wants to cash the check. Which type endorsement should she use? ______________________

       Show how that endorsement will look on the check.______________

       CHECK

    b. Kim Lee wants to endorse her paycheck so that she can send it through the mail to the bank. Which type endorsement should she use? ______________________

       Show how that endorsement will look on the back of a check.

       CHECK

PART D: Application Problems

1. Fill out the deposit ticket below using this information. Use current date. Jack Green is depositing the following items:

50 one-dollar bills	10 quarters
1 one-hundred dollar bill	5 nickels
2 ten dollar bills	
5 five dollar bills	

CHECKS:

23-235	$ 56.00
22-234	5.00
23-267	189.00

101 DEPOSIT TICKET

Date__________ 19___

65-185
515

HOMETOWN BANK
Jack and Jan Green
P.O. Box 111
Hometown, LA 70000

Currency		
Coin		
Checks		
Total Other Side		
TOTAL		
Less Cash Rec'd.		
TOTAL DEPOSIT		

0515-0195 000000 00

Sign if Cash received

2. Now enter the amount of that deposit on the stub below and complete the stub to find the checkbook balance.

Bal. For'd	1234	89
Deposits		
Deposits		
Total		
This check	34	78
Other deducs.		
Bal. For'd		

3. Show how the amount of a check for four-hundred-twenty-six dollars and 56 cents would look on the check in the line where the amount is written out.

____ DOLLARS

APPENDIX B

POSTTEST

Section 2 Test

BANKING AND MONEY RECORDS

PART A: Completion--An important term has been omitted from each of the following statements. Write in the blank the word or words needed to complete each sentence.

1. A place where checks between banks in a large city are cleared electronically is called a(n) __________.
2. Banking by means of computers without using deposit slips or checks is called __________.
3. A document sent to a depositer that reports deposits, checks, service and other charges is called a __________.
4. A check which cannot be paid by the bank because the depositor does not have enough money in the checking account to cover it is called a (n) __________.
5. A check written by the depositor which has not been paid by the bank and does not appear on the statement is called a(n)__________ check. __________.
6. The process of bringing the bank balance and the checkbook balance into agreement is called __________.
7. An account at the bank on which the depositor can draw interest is called a(n)__________ account. __________.
8. The process of taking money out of a savings account is called __________.
9. An amount paid for the use of money is called __________.
10. The smallest balance on deposit in an account is known as the ? balance. __________.
11. A book in which the bank records one's deposits, withdrawals, balance, and interest earned is the __________.
12. Money placed in a bank account by a customer is a __________.
13. A fund used for making small cash payments is called __________.

14. Interest paid on a savings account every three months is said to be paid ________.

15. Interest paid on a savings account every six months is paid ________.

16. When interest is figured then added to the principal amount, we are ? interest. ________.

17. Tables used in computing interest are called ________.

18. Bringing the amount of petty cash up to its orginal amount is called ________.

19. A form used to show amounts of money paid out of the petty cash fund is known as a ________.

20. A deposit which has not been added to the depositor's account by the bank is called a(n) ________.

21. Electronic funds transfer systems in which the customers of more than one cooperating bank can participate are called ________.

22. A fee charged by a bank for handling your checking account is called a ________.

23. An electronic funds transfer system which links a single bank to terminals in various places throughout a bank's trading area is called ________.

24. A check which has been paid by the bank and is sent back to the depositor is a ________.

25. Methods used by banks to credit or debit accounts without using deposit tickets or checks are called ? Funds Transfer Systems ________.

26. A machine located at the bank which allows the depositor to make deposits and withdrawals from accounts electronically by using a bank card and a personal identification number is called a(n) ________.

PART B--Application Problems

1. Joan Lee has a savings account in Hometown Bank. During the last month, she made the following deposits and withdrawals to the account. Show on the passbook form below how these amounts will appear in her passbook. Find the balance after each transaction.

March 1	balance	$300.00
3	deposit	50.00
9	withdrawal	65.00
18	deposit	45.00
29	withdrawal	34.00

HOMETOWN BANK
IN ACCOUNT WITH JOAN LEE

Date	With-drawal	Deposit	Interest	Balance

2. In October, Lee Jones received his bank statement showing a balance of $378.65. A deposit of $150.00 is outstanding. Three checks are also outstanding: No. 31, $7.16; No. 34, $15.10; No. 35, $9.95. There is a $2.00 service charge. His checkbook shows a balance of $498.44. Reconcile the balances on the form below:

DEPOSITOR'S PROOF

To prove the balance as shown on your statement:

1. Sort checks numerically or by date issued.
2. Deduct all bank charges from the balance of your checkbook.
3. Check off the stubs of your checkbook each check paid by bank.
4. Write:

BANK BALANCE SHOWN ON STATEMENT $_____

ADD: Deposits made since statement date $_____

TOTAL $_____

SUBTRACT: Total charges outstanding $_____

TOTAL: Checkbook balance should equal this figure $_____

CHECKS OUTSTANDING	
NUMBER	AMOUNT
Total checks outstanding	

3. Jim Smith deposited $500 in a savings bank on January 2. It pays 6 percent interest a year and adds interest on April 1, July 1, October 1, and January 2 of each year. If he made no deposits or withdrawals, how much did he have on deposit the following January 2? Show work.

4. Using a compound interest table, calculate the interest on a deposit of $1,000 compounded quarterly at 6 percent for three years.

5. ABC Company established a petty cash fund of $250 for small cash payments. During the week, Sue paid out $10.00 for postage, $8.00 for paper clips, and $25.00 for miscellaneous items. How much will be needed to replenish petty cash?

APPENDIX B

KEY FOR TESTS

PRETEST:

PART A:
1. u
2. v
3. h
4. a
5. x
6. q
7. l
8. r
9. b
10. g
11. p
12. f
13. j
14. t
15. o
16. s
17. d
18. y
19. m
20. n

PART B:
1. yes
2. no
3. no
4. no
5. no
6. yes
7. no
8. yes
9. no
10. no
11. no
12. no
13. yes
14. no
15. yes

SECTION 1 Test--POSTTEST

PART A:
1. drawer
2. postdated check
3. deposit
4. check stub
5. FDIC (Federal Deposit Insurance Corporation)
6. checking account
7. register
8. deposit ticket (or slip)
9. depositor
10. endorsement
11. check
12. drawee
13. payee
14. clearing a check
15. clearinghouse
16. forged
17. ABA numbers
18. signature card
19. restrictive
20. blank
21. full or special
22. void
23. stopping payment on a check
24. dishonored check

PART B:
1. yes
2. no
3. yes
4. yes
5. yes
6. no
7. yes
8. no
9. no
10. no
11. no
12. no
13. no
14. yes
15. yes
16. yes
17. no
18. yes
19. yes
20. no
21. no
22. no
23. no
24. no
25. no
26. yes

PART C:

1a. In a bookkeeping transaction, the amount of the check is subtracted from the drawer's account and added to the payee's account, then sent to the drawer.

1b. Drawer gives check to payee, payee deposits in his/her bank, sent to drawer's bank, then returned to drawer.

1c. Drawer to payee, payee's bank, clearinghouse, drawer's bank, drawer.

1d. Drawer, payee, payees' bank, federal reserve system bank, drawer's bank, drawer

2a. blank--John Smith

2b. restrictive--For Deposit only
Jane Jones

PART D:

1.

	Currency	$195.00
	Coin	2.75
C	23-235	$ 56.00
H	22-234	5.50
E	23-267	189.00
C	TOTAL	$ 447.75
K		
S		

2.

Stub	$1234.89
Deposit	447.75
TOTAL	$1682.64
This check	34.78
BALANCE	$1647.86

3. Four-hundred-twenty-six & 56/100_______________

C. SECTION 2--POSTTEST

PART A:

1. automated clearinghouse
2. electronic banking
3. bank statement
4. NSF check
5. outstanding check
6. reconciling the balance
7. savings account
8. withdrawal
9. interest
10. minimum balance
11. passbook
12. deposit
13. petty cash
14. quarterly
15. semiannually
16. compounding
17. interest tables
18. replenishing petty cash
19. voucher
20. outstanding deposit
21. shared systems
22. service charge
23. proprietary system
24. canceled check
25. electronic
26. automated teller machine

PART B: Application Problems

1. Balance after each transaction:

March	1	$300.00
	3	350.00
	9	285.00
	18	330.00
	29	296.00

2. DEPOSITOR'S PROOF
To prove the balance as shown on your statement:

   1. Sort checks numerically or by date issued.

   2. Deduct all bank charges from the balance of your checkbook. (checkbook $498.44
      2.00
      $496.44)

CHECKS OUTSTANDING	
NUMBER	AMOUNT
31	$ 7.16
34	15.10
35	9.95

   3. Check off on the stubs of your checkbook each check paid by bank.

   4. Write:

BANK BALANCE SHOWN ON STATEMENT		$378.65
ADD:	Deposits made since statement date	$150.00
	TOTAL	$528.65
SUBTRACT:	Total checks outstanding	$ 32.21
TOTAL:	Checkbook balance should equal this figure	$496.44

Total checks outstanding

$32.21

3. $530.68

4. 1.195618 x $1000 = 1195.62 comp. amt. Interest is $195.62.

5. $43.00

APPENDIX C

EVALUATION AND TESTING

Ways to evaluate pupil growth:

1. Class participation
2. Business application problems
3. Homework
4. Quizzes
5. Unit test

EQUIPMENT AND SUPPLIES

Student:

Textbook
Workbook
Notebook
Calculator

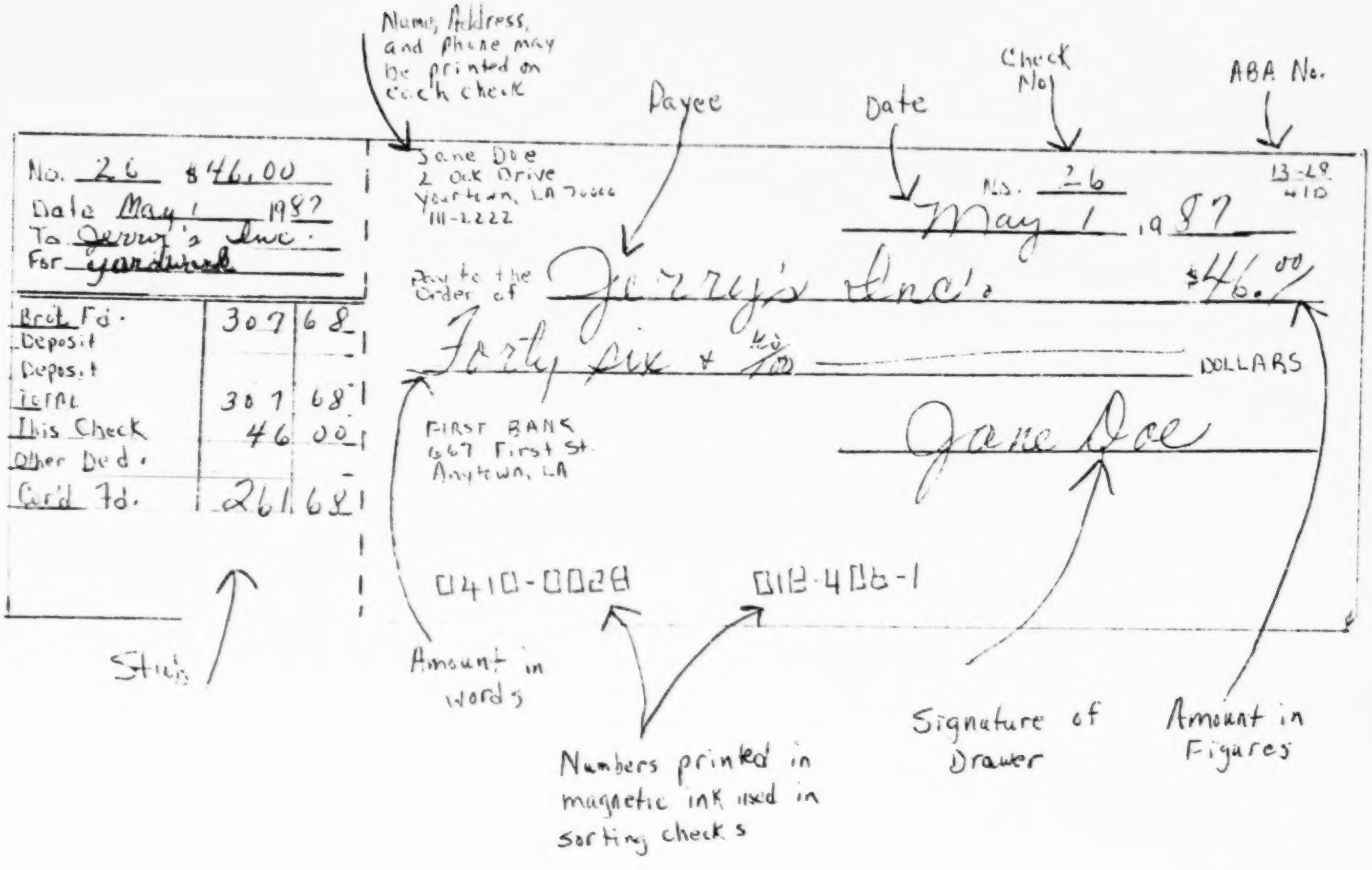
Teacher:

Textbook and Manual
Overhead Projector
Transparencies
Sample Forms (obtained from banks)
Bulletin Board Supplies
Worksheets
Business Forms (checks, reconciliations, deposit slips)
Calculator

APPENDIX D

BULLETIN BOARD IDEA

IMPORTANT PARTS OF A CHECK



No. 26 $46.00
Date May 1 1987
To Jerry's Inc.
For yardwork

Bal. Fd.	307	68
Deposit		
Deposit		
Total	307	68
This Check	46	00
Other Ded.		
Car'd Fd.	261	68

Jane Doe
2 Oak Drive
Yourtown, LA 70000
111-2222

No. 26
13-28
410

May 1 1987

Pay to the Order of Jerry's Inc. $46.00/100

Forty six + 00/100 DOLLARS

FIRST BANK
667 First St.
Anytown, LA

Jane Doe

0410-0028 018-406-1

Name, Address, and Phone may be printed on each check

Payee

Date

Check No.

ABA No.

Stub

Amount in words

Numbers printed in magnetic ink used in sorting checks

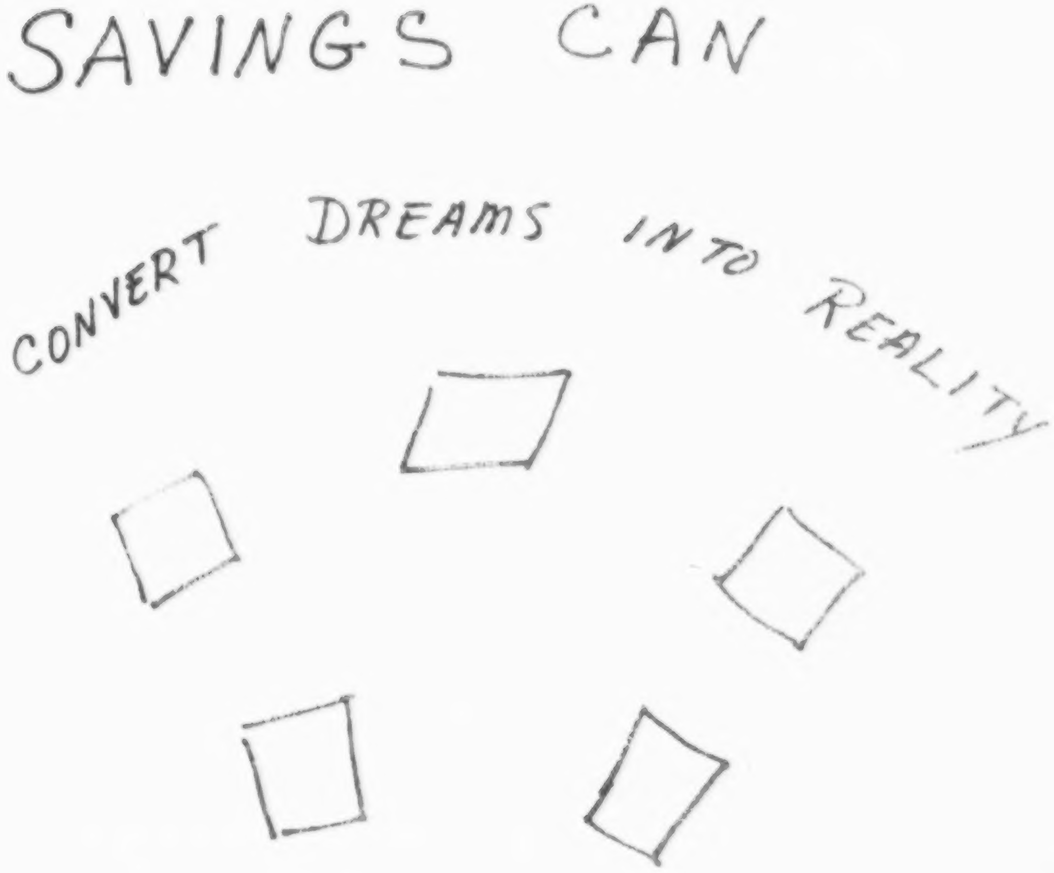
Signature of Drawer

Amount in Figures

V-38

APPENDIX D

BULLETIN BOARD IDEA


SAVINGS CAN
CONVERT DREAMS INTO REALITY

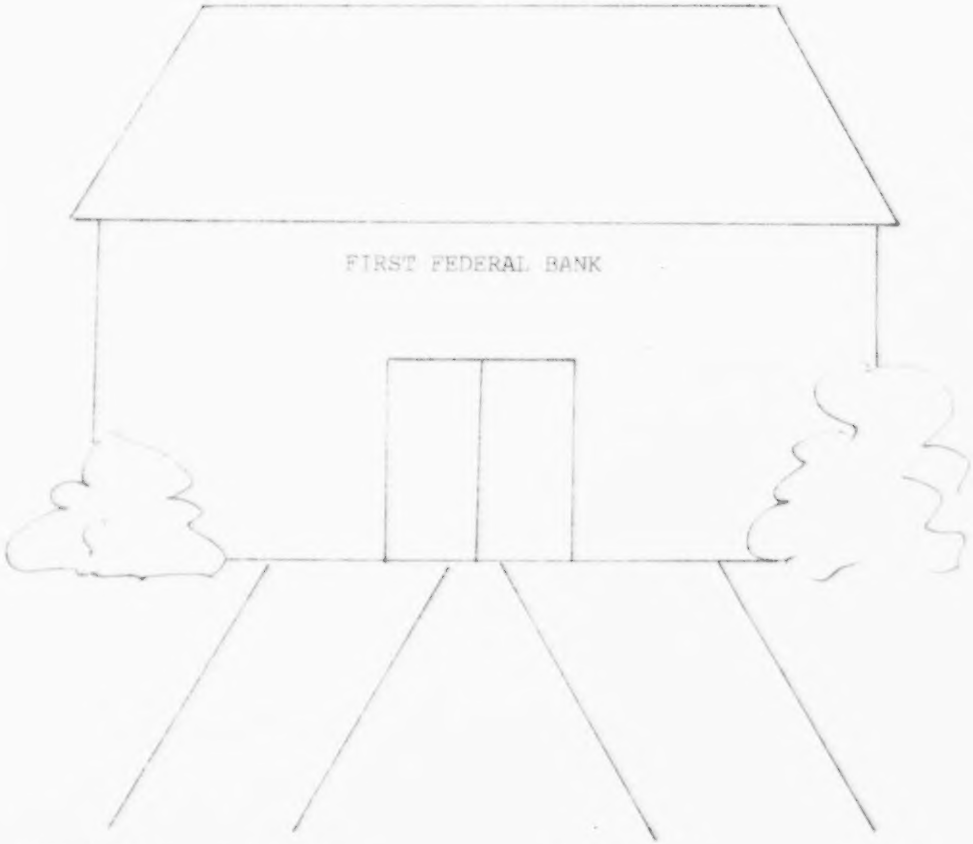
Items to use in display:

1. Savings Passbook
2. Credit Union Statement
3. Savings Deposit Slip
4. Savings Withdrawal Slip
5. Credit Union Literature
6. Advertisements for Savings & Loans Associations
7. Pictures of Houses, Cars, etc.

APPENDIX D

BULLETIN BOARD IDEA

BANK SERVICES


FIRST FEDERAL BANK
Checking Accounts
Savings Accounts
Electronic Funds Transfers
Loans

APPENDIX E

SUPPLEMENTARY MATERIALS

Books

Johnson, Thomas A., Carole Shepard Lissy, and James K. Suck. (1985). Business Math Today. Dubuque, Iowa: William C. Brown Publishers.

Lange, Walter H., Robert D. Mason, and Temoleon G. Rousos. (1984). Business Mathematics. Boston, Massachusetts: Houghton Mifflin Company.

Films/filmstrips

"Using a Checking Account." Sound Filmstrip published by Media Materials, Inc., 2936 Remington Avenue, Baltimore, Maryland 21211. This contains a filmstrip, cassette, instructor's guide, student response booklets, and a set of catalog cards.

"Reconciling a Checking Account." Sound Filmstrip published by Media Materials, Inc., 2936 Remington Avenue, Baltimore, Maryland 21211. Contains same items as above.

"Banking Is ..." A full-color filmstrip included in the "Banking Is" unit. Includes a full-color 35mm filmstrip and audio cassette. Write to National Learning Productions, Inc., 505 6th Avenue, P. O. Box 246, St. Albans, WV 25177-0246 or call toll free 1-800-624-8287.

Periodicals

Donald J. Guerrieri. (1980, November). Checking Accounts and Reconciliation of Bank Statements Crossword Puzzle. The Balance Sheet, pp. 132-143.

Simulations

"The How & Why of Banking," prepared by the California Bankers Association, revised and distributed by the Junior Bankers Section, an educational division of the Louisiana Bankers Association. Supplied free by local banks.

"Security First Bank, a Banking Customer Simulation," published by South-Western Publishing Company, Dallas, Texas. The catalog number is G155-1. This simulation is a very thorough one which covers an introduction to banking through reconciling the bank statement. All the materials needed are included in the simulation. There is a charge for this booklet.

"Banking Is..." a simulation published by National Learning Productions, Inc., 505 6th Avenue, P. O. Box 246, St. Albans, WV 25177-0246. Distributed free by many local banks. Includes a filmstrip, cassette, 12 transparencies. software package, instructor's guide, student study guide (one for each student), and a checkset (one for each student).

Transparencies

"Banking Is..." A set of 12 transparencies which cover the following topics: Banking Services, Signature Card, Deposit Slip, How to Fill out the Register, How to Write a Check, Endorsements, Automated Teller Machines, Reconcilement Worksheet, Magnetic Ink Characters, The Route a Check Follows, Certified Check, and Traveler's Check. Write to National Learning Productions, Inc., 505 6th Avenue, P. O. Box 246, St. Albans, WV 25177-0246 or call toll free 1-800-624-8287. These are supplied free by local banks.

Video Cassette

"Banking" from Common Cents Series.
(3/4 or 1/2 inch video cassette, 15 minutes.)
Distributed by Agency for Instructional Technology, Box A, Bloomington, IN 47402.

"Bank Reconciliation" from Office Machines - Calculations Series.
(1/2 inch video cassette BETA/VHS, 11 minutes.)
Distributed by RMI Media Productions, 2807 W. 47th Street, Shawnee Mission, KS 66205.

UNIT VI

PAYROLL AND TAXES

INTRODUCTION

Federal and state laws require businesses to keep complete and accurate payroll records for all employees. Businesses must pay taxes and prepare government reports which are related to payroll records.

This unit will provide the student with an understanding of payroll and tax records. Upon successful completion of this unit, the student will have acquired the necessary business-related math skills for preparing payroll records.

COMPETENCIES

1. Figure overtime and regular pay from time cards and compute gross earnings based on hourly rate, piece rate, salary, and commission.
2. Identify FICA taxes, income taxes, insurance, and other deductions, and figure net pay on the payroll register.
3. Explore the various forms and records used by employers to fulfill payroll legal requirements, prepare an employee's earnings record, and compute the employer's share of payroll taxes.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Demonstrate a basic understanding of the concepts related to payroll.
2. Accurately apply appropriate business-related math skills to compute payroll and figure taxes.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to identify correctly and use the vocabulary terms for computing gross earnings on a quiz with 80 percent accuracy.

1.2. In class, the student will compute regular and overtime hours based on hourly rate of pay on a simulated payroll exercise.

1.3. Given a set of time cards, the student will compute hours per day, total hours, and total earnings.

1.4. In a classroom exercise, the student will compute piece rate wages for several employees.

1.5. The student will figure an employee's monthly, weekly, and bi-weekly earnings based on an annual salary as a classroom assignment.

1.6 The student will complete successfully a practice drill on figuring earnings by commission.

2.1. As a classroom assignment, the student will complete a handout of terms and definitions related to payroll deductions.

2.2. The student will compute FICA taxes as a percentage of total earnings.

2.3. As a classroom assignment, the student will find FICA taxes by using a tax table.

2.4. Given federal income tax tables, the student will be able to compute federal income tax correctly during a class assignment.

2.5. In class, the student will identify correctly other types of payroll deductions besides FICA and income taxes.

2.6. Given two practice assignments in preparing the payroll register, the student will complete successfully the register.

2.7. The student will complete a payroll register as a quiz with 80 percent accuracy.

3.1. The student will be able to identify correctly the terminology of payroll forms and records on the unit test with 100 percent accuracy.

3.2. When given an employee's earnings record, the student will complete the earnings record as a class assignment.

3.3. The student will identify and figure the payroll taxes paid by the employer as a class assignment.

METHODOLOGY

This unit covers different methods of determining gross earnings, the deductions included in almost all payrolls, and how payroll amounts are entered on the payroll register and on an employee's earnings record. It also introduces the student to the payroll forms and records which the employer is required by law to file.

Textbooks, business forms and problems, teaching transparencies, simulations, visual aids, guest speakers, and field trips will be used in this unit.

A pretest, a unit posttest, and quizzes with answer keys are included in this unit. The unit test does not include a payroll register and an earnings record for the student to complete. The teacher may prepare a register or earnings record to be included with the unit test if desired. The accuracy levels suggested in the specific performance objectives may be adjusted to suit the individual teacher's desires or the requirements of the school system.

SUGGESTED INTEREST APPROACHES

1. Field trip to a local company to observe time clock, payroll clerk at work, etc.
2. Have students collect information from local firms on how employees are paid and prepare a report on their findings.
3. Have students collect information from friends and relatives who work out-of-town on how employees are paid in their businesses. Prepare a report on findings.
4. Get sample time cards containing time clock recordings from several businesses and prepare a bulletin board, or have students collect time cards and prepare posters.
5. Have a person who is paid by commission speak to the class.
6. Have a payroll clerk as a guest speaker.
7. Have students complete a pegboard payroll simulation which provides a realistic view of how pegboard accounting works.
8. If there is access to computers, use a computerized payroll simulation which gives the student hands-on experience in using a diskette to process the payroll. Select a simulation packet that contains several methods of computing earnings, such as salary, piece rate, commission, etc.

UNIT VI OUTLINE

PAYROLL AND TAXES

I. Gross Earnings

  A. Terminology
    1. Gross earnings
    2. Wages
    3. Salary
    4. Hourly rate
    5. Piece rate
    6. Commission
    7. Regular pay
    8. Overtime wages
    9. Time cards
  B. Hourly Rate
    1. Regular time
    2. Overtime
  C. Time cards or sheets
  D. Piece rate
  E. Salary
  F. Commission

II. Deductions from Gross Earnings

  A. Terminology
    1. Deductions
    2. Net pay
    3. Exemptions
    4. FICA taxes
    5. Federal income taxes
    6. State income tax
    7. Payroll register
  B. FICA (social security) Taxes
    1. Computing as percent of total earnings
    2. Using FICA tax table
  C. Insurance and Other Deductions
  D. Completing Payroll Register to Find Net Pay

III. Forms and Records

  A. Terminology
    1. W-2 Form
    2. Employee's earnings record
    3. Federal unemployment tax
    4. State unemployment tax
  B. Preparing Employee's Earnings Record
  C. Figuring Employer's Tax Records

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to identify correctly and use the vocabulary terms for computing gross earnings on a quiz with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: gross earnings wages salary hourly rate piece rate commission regular pay overtime wages time cards	1. Read from textbook and discuss various terms relating to gross earnings. 2. Complete the crossword puzzle after reviewing terms. (Appendix A, 1.1A) 3. Answer quiz on gross earnings vocabulary terms. (Appendix A, 1.1B)

1.2. In class, the student will compute regular and overtime hours based on hourly rate of pay on a simulated payroll exercise.

Subject Matter Content	Learning Activities
Hourly rate of pay regular time overtime	1. View chalkboard as instructor illustrates how to compute regular and overtime earnings based on hourly pay. 2. Complete handout on figuring regular and overtime earnings. (Appendix A, 1.2)

1.3. Given a set of time cards, the student will compute hours per day, total hours, and total earnings.

Subject Matter Content	Learning Activities
Time cards	1. View transparency as teacher explains how to complete a time card. (Appendix A, 1.3)

2. Compute regular hours, overtime hours, and total earnings on time cards prepared by the teacher.

1.4. In a classroom exercise, the student will compute piece rate wages for several employees.

Subject Matter Content	Learning Activities
Piece rate wages	1. Listen as teacher explains piece rate wages. 2. Complete handout on figuring piece rate wages. (Appendix A, 1.4)

1.5. The student will figure an employee's monthly, weekly, and biweekly earnings based on an annual salary in a classroom assignment.

Subject Matter Content	Learning Activities
Salaried employees	1. Read text assignment on salaried employees. 2. Complete drill on figuring earnings of salaried employees. (Appendix A, 1.5)

1.6. The student will complete successfully a practice drill on figuring earnings by commission.

Subject Matter Content	Learning Activities
Commission	1. View chalkboard as teacher explains how to figure earnings for employees paid by commission. 2. Complete a handout on figuring commission. (Appendix A, 1.6)

2.1. As a classroom assignment, the student will complete a handout of terms and definitions related to payroll deductions.

Subject Matter Content	Learning Activities
Terminology: deductions net pay exemptions FICA taxes federal income tax state income tax payroll register	1. Complete a teacher-prepared handout of terms and definitions relating to payroll deductions. 2. Check accuracy of terms on handout during oral discussion. 3. Complete a word-search game as prepared by the teacher.

2.2. The student will compute FICA taxes as a percentage of total earnings.

Subject Matter Content	Learning Activities
FICA taxes Percentage of total earnings	1. View chalkboard as teacher explains how to figure FICA taxes as a percentage of total earnings. 2. Figure FICA taxes as a percentage of total earnings on a handout. (Appendix A, 2.2)

2.3. As a classroom assignment, the student will find FICA taxes by using a tax table.

Subject Matter Content	Learning Activities
FICA tax table	1. View FICA tax table in textbook as teacher explains how to find FICA tax. 2. Compute FICA tax on gross earnings handout using tables. (Appendix A, 2.3)

2.4. Given federal income tax tables, the student will be able to compute federal income tax correctly during a class assignment.

Subject Matter Content	Learning Activities
Federal income tax	1. Read textbook pages covering federal income taxes.
	2. View tables in textbook as teacher explains how to figure income tax.
	3. Find federal income tax on handout using tables in textbook. (Appendix A, 2-4)

2.5. In class, the student will identify correctly other types of payroll deductions besides FICA and income taxes.

Subject Matter Content	Learning Activities
Payroll deductions Insurance Savings Credit union Stocks and bonds Charitable contributions	1. Read textbook pages covering other payroll deductions besides FICA and income tax.
	2. Participate in an oral review of deductions.
	3. Listen as guest speaker describes how to prepare the payroll.

2.6. Given two practice assignments in preparing the payroll register, the student will complete successfully the register.

Subject Matter Content	Learning Activities
Payroll register	1. Study example of completed payroll register in textbook.
	2. View teacher-prepared transparency as teacher illustrates how to complete entries in a payroll register for two employees.

3. Complete two payroll registers as class assignments as prepared by the teacher.

2.7. The student will complete a payroll register as a quiz with 80 percent accuracy.

Subject Matter Content	Learning Activities
Quiz on payroll register	1. During oral discussion, review steps in preparing a payroll register. 2. Complete quiz on payroll register. (Appendix A, 2.7)

3.1. The student will be able to identify correctly the terminology of payroll forms and records on the unit test with 100 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: W-2 form Employee's earnings record Federal unemployment tax State unemployment tax	1. Using textbook pages, define a list of vocabulary terms on payroll forms and records. 2. Check accuracy of definitions during oral discussion of payroll forms and records.

3.2. When given an employee's earnings record, the student will complete the earnings record as a class assignment.

Subject Matter Content	Learning Activities
Employee's earnings record	1. Refer to earnings record example in textbook as teacher explains how the earnings record is prepared. 2. Complete an earnings record for one employee. (Appendix A, 3.2)

3.3. The student will identify and figure the payroll taxes paid by the employer as a class assignment.

Subject Matter Content	Learning Activities
Employer's share of payroll taxes	1. Read textbook pages on employer's taxes.
	2. Listen as guest speaker explains employer's payroll taxes.
	3. Complete teacher-prepared hand-out on figuring employer's pay-roll taxes.

APPENDIX A

LEARNING ACTIVITY FOR 1.1A

PAYROLL AND TAXES

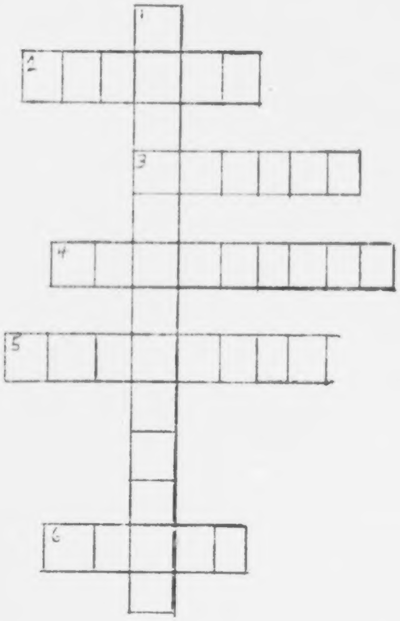
Vocabulary Puzzle

Across

2. If an employee makes $7.00 an hour, he is paid ?.
3. When an employee makes $900 a month, without regard to his hours, he is paid a ?.
4. When an employee is paid according to the number of items he produces, he is a _____ worker.
5. Hours above the regular work week are called ?.
6. The amount of money a person earns is called ?.

Down

1. The total amount of money a person makes before deductions are subtracted is called ?.



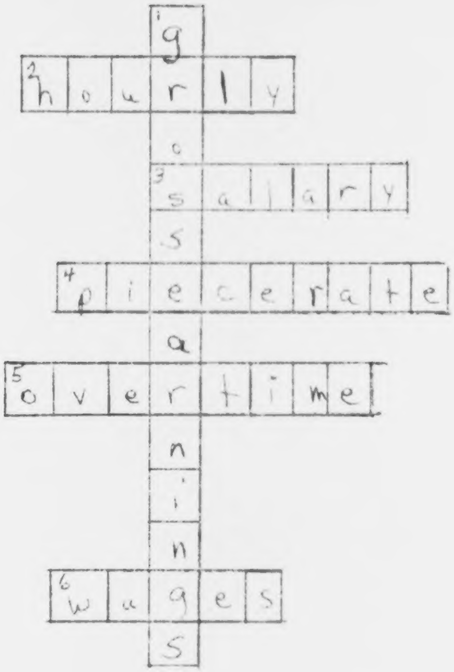
APPENDIX A

LEARNING ACTIVITY FOR 1.1A

PAYROLL AND TAXES

Vocabulary Puzzle

Key


1 g r o s s e a r n i n g s
2 h o u r l y
3 s a l l a r y
4 p i e c e r a t e
5 o v e r t i m e
6 w a g e s

APPENDIX A

LEARNING ACTIVITY FOR 1.1B

PAYROLL AND TAXES

Vocabulary Quiz

Define in your own words:

1. Overtime
2. Time cards
3. Wages
4. Joe makes $1,000 a month. This means he is paid on a(n) ______________ basis.
5. Jane made $250 this week before deductions were subtracted for insurance, taxes, etc. This $250 amount is called ____________________.
6. Jean is paid $6.50 an hour. She is paid on a(n) _________ basis.
7. The number of hours of work expected in a regular work day or week is called _________ time.
8. Sue made 1089 items this week. She is paid on a(n) _____________ basis.
9. When people make a certain amount for each thing they sell, for example, they are paid on ___________.

Key to Vocabulary Quiz:

1. Overtime - any time worked over regular time.
2. Time card - a card which shows the time that the worker arrived and left for regular hours and for overtime.
3. Wages - the amount of money a person is paid.
4. Monthly
5. Gross earnings
6. Hourly
7. Regular or straight time
8. Piece rate
9. Commission

APPENDIX A

LEARNING ACTIVITY FOR 1.2

FIGURING REGULAR AND OVERTIME WAGES

In ABC Company, any hours over a 40-hour work week are considered overtime. Employees are paid time-and-a-half for overtime. Find regular and overtime hours, and then compute gross earnings.

Hours Worked	Regular Rate	Regular Hours	Overtime Hours	Regular Earnings +	Overtime Earnings =	Gross Earnings
42	$ 7.50					
35	6.00					
44	10.00					
37	8.75					
45	9.50					
32	6.75					
41	6.50					
40	8.00					
38	9.10					
47	7.20					

APPENDIX A

LEARNING ACTIVITY FOR 1.2

FIGURING REGULAR AND OVERTIME WAGES

KEY

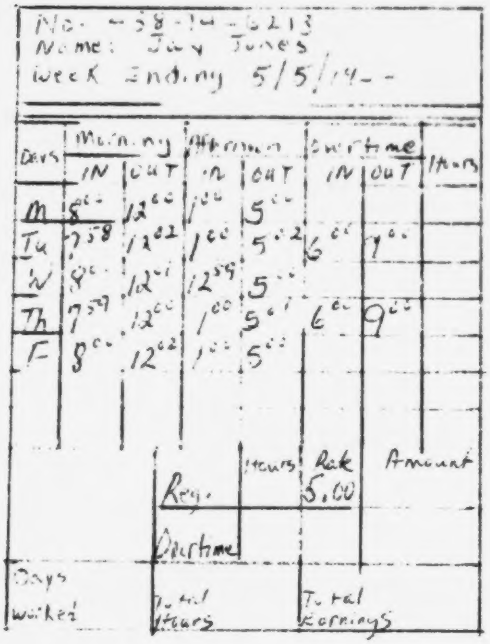
In ABC Company, any hours over a 40-hour work week are considered overtime. Employees are paid time-and-a-half for overtime. Find regular and overtime hours, and then compute gross earnings.

Hours Worked	Regular Rate	Regular Hours	Overtime Hours	Regular + Earnings	Overtime = Earnings	Gross Earnings
42	$ 7.50	40	2	$300.00	$ 22.50	$322.50
35	6.00	35	0	210.00	-	210.00
44	10.00	40	4	400.00	60.00	460.00
37	8.75	37	0	323.75	-	323.75
45	9.50	40	5	380.00	71.25	451.25
32	6.75	32	0	216.00	-	216.00
41	6.50	40	1	260.00	9.75	269.75
40	8.00	40	0	320.00	-	320.00
38	9.10	38	0	345.80	-	345.80
47	7.20	40	7	288.00	75.60	363.60

APPENDIX A

TRANSPARENCY FOR 1.3

PAYROLL TIME CARD



No. 458-14-6213
Name: Jay Jones
Week Ending 5/5/19--

Days	Morning		Afternoon		Overtime		Hours
	IN	OUT	IN	OUT	IN	OUT	
M	8^{00}	12^{00}	1^{00}	5^{00}			
Tu	7^{58}	12^{02}	1^{00}	5^{02}	6^{00}	9^{00}	
W	8^{00}	12^{01}	12^{59}	5^{00}			
Th	7^{59}	12^{00}	1^{00}	5^{01}	6^{00}	9^{00}	
F	8^{00}	12^{02}	1^{00}	5^{00}			

	Hours	Rate	Amount
Reg.		5.00	
Overtime			

Days worked	Total Hours	Total Earnings

APPENDIX A

LEARNING ACTIVITY FOR 1.4

PIECE RATE WAGES

In XYZ Company, employees are paid 38 cents for each item produced and accepted during the week. Find total items accepted and total earnings on the following employees.

Employee	M.	Tu.	Wed.	Th.	F.	Not Accepted	Total Accepted	Total Earnings
1	180	187	190	191	178	15		
2	165	170	169	171	174	13		
3	175	167	Abs.	189	190	14		
4	188	189	200	193	195	15		
5	190	201	200	195	198	20		

PIECE RATE WAGES

KEY

In XYZ Company, employees are paid 38 cents for each item produced and accepted during the week. Find total items accepted and total earnings on the following employees.

Employee	M.	Tu.	Wed.	Th.	F.	Not Accepted	Total Accepted	Total Earnings
1	180	187	190	191	178	15	911	$346.18
2	165	170	169	171	174	13	836	317.68
3	175	167	Abs.	189	190	14	707	268.66
4	188	189	200	193	195	15	950	361.00
5	190	201	200	195	198	20	964	366.32

APPENDIX A

LEARNING ACTIVITY FOR 1.5

SALARIED EARNINGS

1. For each annual salary, give the monthly salary:
(Round if necessary)

Annual Salary	Monthly Salary	Key
a. $ 9,600	a.	a. $ 800.00
b. 10,640	b.	b. 886.67
c. 8,700	c.	c. 725.00
d. 12,500	d.	d. 1,041.67
e. 15,400	e.	e. 1,283.33

2. For each annual salary, give the weekly salary:

Annual Salary	Weekly Salary	Key
a. $ 8,900	a.	a. $ 171.15
b. 10,500	b.	b. 201.92
c. 12,500	c.	c. 240.38
d. 8,000	d.	d. 153.85
e. 7,800	e.	e. 150.00

3. For each annual salary, give the biweekly salary:

Annual Salary	Biweekly Salary	Key
a. $ 8,800	a.	a. $ 338.46
b. 10,500	b.	b. 403.85
c. 16,000	c.	c. 615.38
d. 12,400	d.	d. 476.92
e. 7,600	e.	e. 292.31

On all problems, round if necessary.

APPENDIX A

LEARNING ACTIVITY FOR 1.6

COMMISSIONS

I. Find the total monthly earnings for each salesperson.

	Salesperson	Monthly Salary	Monthly Sales	Commission Rate	Commission Earned	Gross Earnings
1.	Adams	$ 300	$ 2,000	10%	1.	1.
2.	Jones	500	10,000	3%	2.	2.
3.	Lee	400	12,000	5%	3.	3.
4.	Sanders	350	7,800	12%	4.	4.
5.	Smith	450	10,500	3.5%	5.	5.

COMMISSIONS

KEY

I. Find the total monthly earnings for each salesperson.

	Salesperson	Monthly Salary	Monthly Sales	Commission Rate	Commission Earned	Gross Earnings
1.	Adams	$ 300	$ 2,000	10%	1. $200.00	1. $ 500.00
2.	Jones	500	10,000	3%	2. 300.00	2. 800.00
3.	Lee	400	12,000	5%	3. 600.00	3. 1,000.00
4.	Sanders	350	7,800	12%	4. 936.00	4. 1,286.00
5.	Smith	450	10,500	3.5%	5. 367.50	5. 817.50

[illegible]

[illegible]

[illegible]

Figuring FICA tax as a percentage of [illegible] rate is 6.13% of total earnings, [illegible]

Total Earnings

1. $ [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

5. [illegible]

[illegible]

[illegible] rate is [illegible] earnings, [illegible]

Total Earnings

1. $ 313.16

2. 380.00

3. 576.00

4. 555.00

5. 420.72

APPENDIX A

LEARNING ACTIVITY FOR 2.3

FICA TAX TABLES

Using FICA tax tables in textbook, compute FICA tax on the following total earnings:

Total Earnings	FICA Amount
1. $ 200.12	1. $
2. 203.70	2.
3. 248.00	3.
4. 235.00	4.
5. 199.95	5.

FICA TAX TABLES

KEY

Using FICA tax tables in textbook, compute FICA tax on the following total earnings:

Total Earnings	FICA Amount
1. $ 200.12	1. $ 12.27
2. 203.70	2. 12.49
3. 248.00	3. 15.20
4. 235.00	4. 14.40
5. 199.95	5. 12.26

APPENDIX A

LEARNING ACTIVITY FOR 2.4

FEDERAL INCOME TAXES

Find the federal tax on the following weekly earnings:

	Total Earnings	Marital Status	No. Exemp.	Income Tax	Answers
1.	$ 215.00	M	2	______	1.
2.	208.00	M	5	______	2.
3.	190.00	S	1	______	3.
4.	220.25	M	3	______	4.
5.	250.90	M	4	______	5.

Based on the latest tables, 1985.

FEDERAL INCOME TAXES

KEY

Find the federal tax on the following weekly earnings:

	Total Earnings	Marital Status	No. Exemp.	Income Tax	Answer Key
1.	$ 215.00	M	2	______	1. $ 15.60
2.	208.00	M	5	______	2. 7.50
3.	190.00	S	1	______	3. 20.80
4.	220.25	M	3	______	4. 14.50
5.	250.90	M	4	______	5. 15.80

Based on the latest tables, 1985.

APPENDIX A

LEARNING ACTIVITY FOR 2.7

QUIZ ON PAYROLL REGISTER

ABC Company

Payroll Register — Week Ending April 1, 1987

			Deductions				
Employee	Exemp-tions	Gross Earnings	FICA Tax	Income Tax	Other Deduc.	Total Deduc.	Net Pay
A	2-S	$ 250.00	$	$	$4.60	$	$
B	4-M	252.10			8.80		
C	3-M	197.01			9.10		
D	1-S	225.08			5.20		
E	2-M	255.00			3.30		
_	_	$	$	$	$	$	$

Complete the payroll register using tax tables in textbook. If an amount is not on the table for FICA, multiply earnings by 6.13%.

APPENDIX A

LEARNING ACTIVITY FOR 2.7

QUIZ ON PAYROLL REGISTER

KEY

ABC Company

Payroll Register — Week Ending April 1, 1987

			Deductions				
Employee	Exemp-tions	Gross Earnings	FICA Tax	Income Tax	Other Deduc.	Total Deduc.	Net Pay
A	2-S	$ 250.00	$15.33	$ 28.20	$ 4.60	$ 48.13	$201.87
B	4-M	252.10	15.45	15.80	8.80	40.05	212.05
C	3-M	197.01	12.08	10.90	9.10	32.08	164.93
D	1-S	225.08	13.80	26.20	5.20	45.20	179.88
E	2-M	255.00	15.63	22.00	3.30	40.93	214.07
_	_	$1179.19	$72.29	$103.10	$31.00	$206.39	$972.80

Complete the payroll register using tax tables in textbook. If an amount is not on the table for FICA, multiply earnings by 6.13%.

APPENDIX A

LEARNING ACTIVITY FOR 3.2

EARNINGS RECORD

1. The total earnings of Mary Jones for the 13 weeks in the quarter January - March of the current year are given below, with the deductions for hospitalization insurance.

Week Ended	Total Earnings	Deductions	Week Ended	Total Earnings	Deductions
1/7	$ 140.00	9.50	2/18	$ 144.07	
1/14	139.00		2/25	138.60	
1/21	138.76		3/4	139.50	9.50
1/28	141.64		3/11	141.50	
2/4	136.00	9.50	3/18	138.10	
2/11	138.00		3/25	140.00	
			3/31	136.00	

Prepare an earnings record for the first quarter of the year. Additional data is as follows:

a. Time card # 38
b. SS# 287-40-8013
c. Secretary
d. No accumulated earnings at beginning of year.
e. Single, one exemption, FICA tax

Name: ______________
SS#: ______________
Marital Status: ______________

Time Card _____

EARNINGS RECORD

Pay Per.		Total Earnings	Deductions					Net Pay	Acc. Tot.
Week	End.		Inc. Tax	FICA Tax	Hosp.Ins.	Other	Total		
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
QuarterTot.									

APPENDIX A

LEARNING ACTIVITY FOR 3.2

EARNINGS RECORD

KEY

Name: Mary Jones
SS#: 287-40-8013
Marital St.: S, 1

Time Card 38

EARNINGS RECORD

Pay Per.		Total Earnings	Deductions					Net Pay	Acc. Tot.
Week	End.		Inc. Tax	FICA Tax	Hosp.Ins.	Other	Total		0 0 0 0 60
1	1/7	140.00	12.90	8.58	9.50		30.98	109.02	140.00
2	1/14	139.00	12.10	8.52			20.62	118.38	279.00
3	1/21	138.76	12.10	8.51			20.61	118.15	417.76
4	1/28	141.64	12.90	8.68			21.58	120.06	559.40
5	2/4	136.00	12.10	8.34	9.50		29.94	106.06	695.40
6	2/11	138.00	12.10	8.46			20.56	117.44	833.40
7	2/18	144.07	12.90	8.83			21.73	122.34	977.47
8	2/25	138.60	12.10	8.50			20.60	118.00	1116.07
9	3/4	139.50	12.10	8.55	9.50		30.15	109.35	1255.57
10	3/11	141.50	12.90	8.67			21.57	119.93	1397.07
11	3/18	138.10	12.10	8.47			20.57	117.53	1535.17
12	3/25	140.00	12.90	8.58			21.48	118.52	1675.17
13	3/31	136.00	12.10	8.34			20.44	115.56	1811.17
QuarterTot.		1811.17	161.30	111.03	28.50		300.83	1510.34	

APPENDIX B

UNIT VI

PAYROLL AND TAXES

PRETEST

Directions: This test will help the teacher determine how well you can do some of the business-related math skills used in this unit.

Section A--Basic Math Skills

(as a decimal)

1. 5% of $500 = ___   3. 1.36/100 = ___   5. 1 1/2 = ___

2. 6% of $300 = ___   4. 126 x 0.01 = ___   6. $245 x 6% = ___

Section B--Application Problems

7. Jane works at $6.75 per hour for a 40-hour week and time-and-a-half for overtime. During one week, she works 8 hours a day on Monday through Wednesday, 9 hours on Thursday, and 10 hours on Friday. Find her total earnings for the week. (Round off overtime rate, if necessary)

____

8. Last week, Jim Carlson had total earnings of $345.00. His employer had to deduct 6.13% for social security taxes and $38.75 for federal income tax. Jim also pays $12.50 a week for insurance. Find his take-home pay.

____

9. Joe works on a piece rate basis. He is paid 40 cents for each piece that he completes and is accepted. Last week he completed the following pieces: Monday, 180; Tuesday, 203; Wednesday, 189; Thursday, 191; and Friday, 177. A total of 20 pieces were not accepted. What were his total earnings for the week?

____

10. An employer must also pay FICA taxes on employees. If an employer's total payroll for this month was $23,987.00 and FICA taxes are 6.13% of total payroll, how much must the employer pay this month?

____

APPENDIX B

PAYROLL AND TAXES

POSTTEST

Section A--TRUE/FALSE: Write a T in the blank if the statement is true; write an O if it is false.

_____ 1. A business must withhold certain payroll taxes from salaries that its employees earn.

_____ 2. The federal income tax amount is the same for a single person as it is for a married person.

_____ 3. An employee with one exemption pays the same amount of income tax as a person with four exemptions.

_____ 4. Some states require employers to withhold state income tax from employees.

_____ 5. The employee does not have to pay FICA taxes.

_____ 6. Only the employer has to pay federal unemployment tax.

_____ 7. An employee has to have a different social security number for each business he works for.

_____ 8. Most employers use the employee's earnings record to prepare the payroll register.

_____ 9. Employers usually use time cards as a source of preparing the payroll register.

_____ 10. To find accumulated earnings on the employee's earnings record, add previous accumulated earnings to net pay.

_____ 11. FICA tax can be found by multiplying the percentage of FICA (currently 6.13%) by the total earnings or by using a social security tax table.

_____ 12. All businesses pay salaries on a monthly pay period.

_____ 13. Overtime is usually time-and-a-half of regular time rate.

_____ 14. Employers never deduct hospitalization from employees' checks.

_____ 15. The payroll register is the form used to show the accumulated earnings for one individual for 13 weeks.

_____ 16. When an employee is paid $7.50 per hour for each hour worked, he is working on a piece rate basis.

_____ 17. Commissioned employees are paid a base salary plus a certain percentage of sales.

_____ 18. Net pay is the amount of take-home pay the employee earns after all deductions have been subtracted.

_____ 19. Gross earnings are the total earnings of an employee after deductions have been subtracted.

_____ 20. A person who makes $15,000 annually is working on a salary basis.

_____ 21. Deductions are amounts of money added to total earnings to figure net pay.

_____ 22. The W-2 form is a form on which the employer records his payroll taxes.

_____ 23. FICA taxes mean the same thing as federal unemployment taxes.

_____ 24. The FICA tax rate increases as the employee's earnings increase.

_____ 25. A biweekly pay period means that employees are paid two times a week.

Section B--Multiple Choice

_____ 1. Information needed to help the payroll clerk determine how much an employee's federal income tax withholding is includes: (A) wages, payroll period, number of exemptions, and marital status; (B) total earnings, marital status, age, and number of exemptions; (C) wages, age, and the amount of federal unemployment tax.

_____ 2. Deductions from the employee's total earnings include: (A) FICA tax, state unemployment tax; (B) income tax and federal unemployment tax; (C) FICA tax and income tax.

_____ 3. The accumulated earnings column of a worker's earnings record shows the accumulated earnings for the: (A) month (B) year (C) the total time the person has worked at that company.

_____ 4. To find an employee's total earnings, multiply: (A) regular hours times regular rate plus overtime hours time overtime rate; (B) regular hours times regular rate only; (C) regular hours times regular rate and overtime hours times double time.

_____ 5. Payroll information is recorded in a payroll register: (A) at the end of each week; (B) at the end of each year; (C) at the end of the payroll period.

APPENDIX B

PAYROLL AND TAXES

TEST KEYS

PRETEST

1. $25.00
2. $18.00
3. .0136
4. 1.26
5. 1.5
6. $14.70
7. $300.39
8. $272.60
9. $368.00
10. $1470.40

POSTTEST

Section A--TRUE/FALSE	Section B--MULTIPLE CHOICE
1. T	1. A
2. O	2. C
3. O	3. B
4. T	4. A
5. O	5. C
6. T	
7. O	
8. O	
9. T	
10. O	
11. T	
12. O	
13. T	
14. T	
15. T	
16. O	
17. T	
18. T	
19. O	
20. T	
21. T	
22. O	
23. O	
24. O	
25. O	

APPENDIX C

EVALUATION AND TESTING

Ways to evaluate pupil growth:

1. Class participation
2. Quizzes
3. Business application problems
4. Homework
5. Class assignments
6. Unit test

EQUIPMENT AND SUPPLIES

Student:

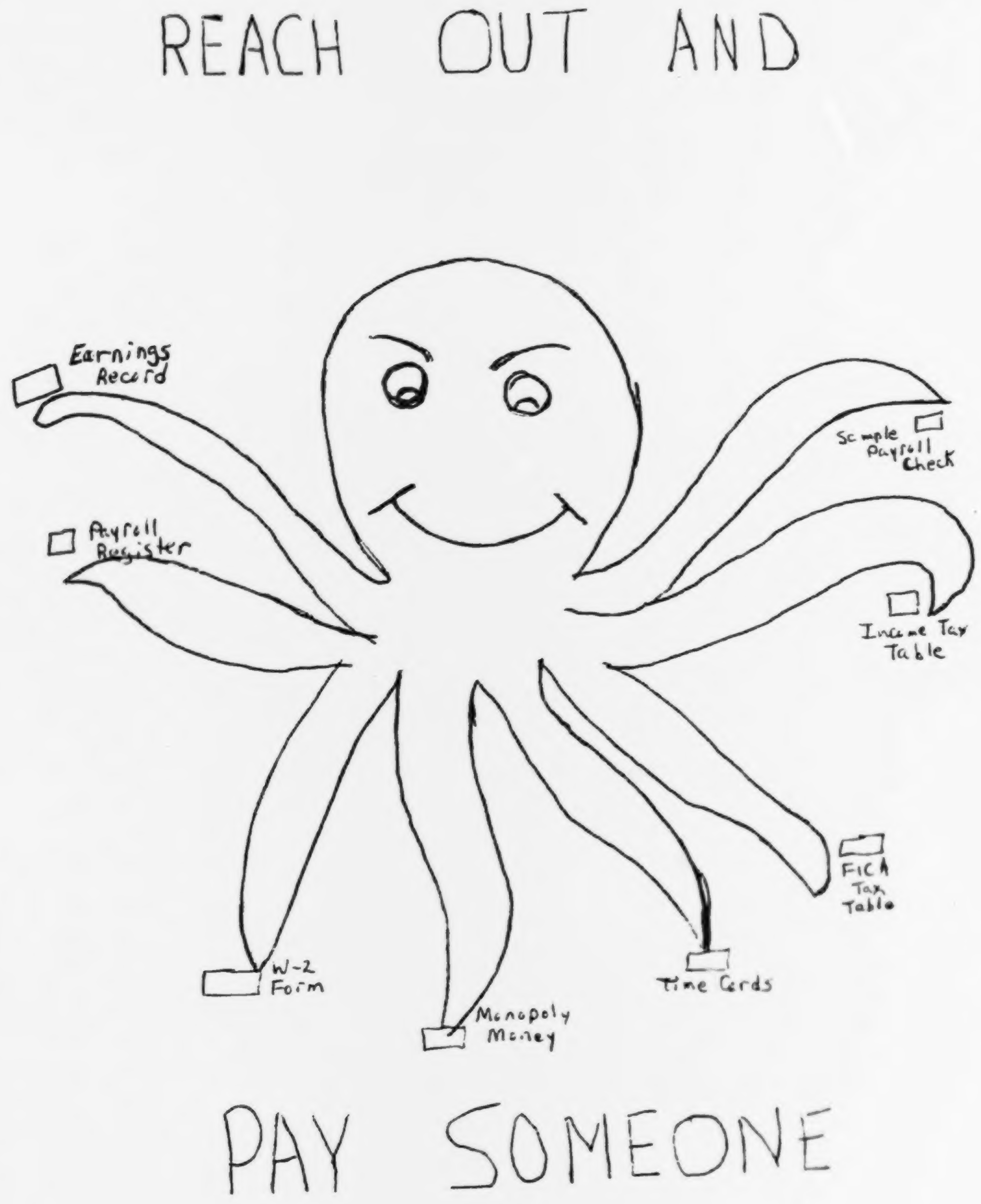
- Textbook
- Workbook
- Notebook
- Calculator
- Poster Paper (optional)

Teacher:

- Textbook and Manual
- Overhead Projector
- Transparencies
- Sample Payroll Forms from Local Companies
- Bulletin Board Supplies
- Worksheets
- Business Forms (payroll register, earnings record, etc. which will be found in workbook if student uses a workbook)
- Calculator

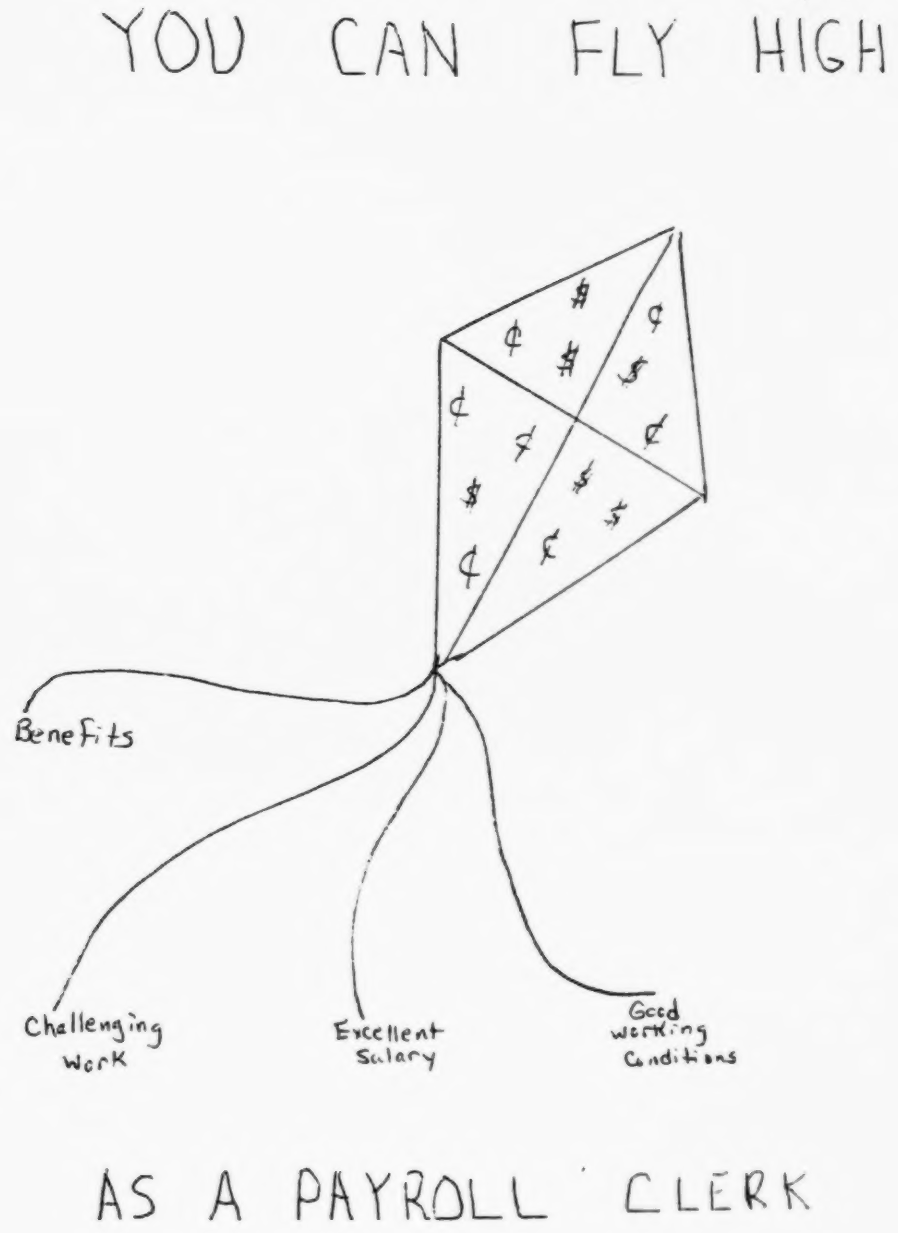
APPENDIX D

BULLETIN BOARD IDEA


REACH OUT AND
Earnings Record
Sample Payroll Check
Payroll Register
Income Tax Table
FICA Tax Table
W-2 Form
Time Cards
Monopoly Money
PAY SOMEONE

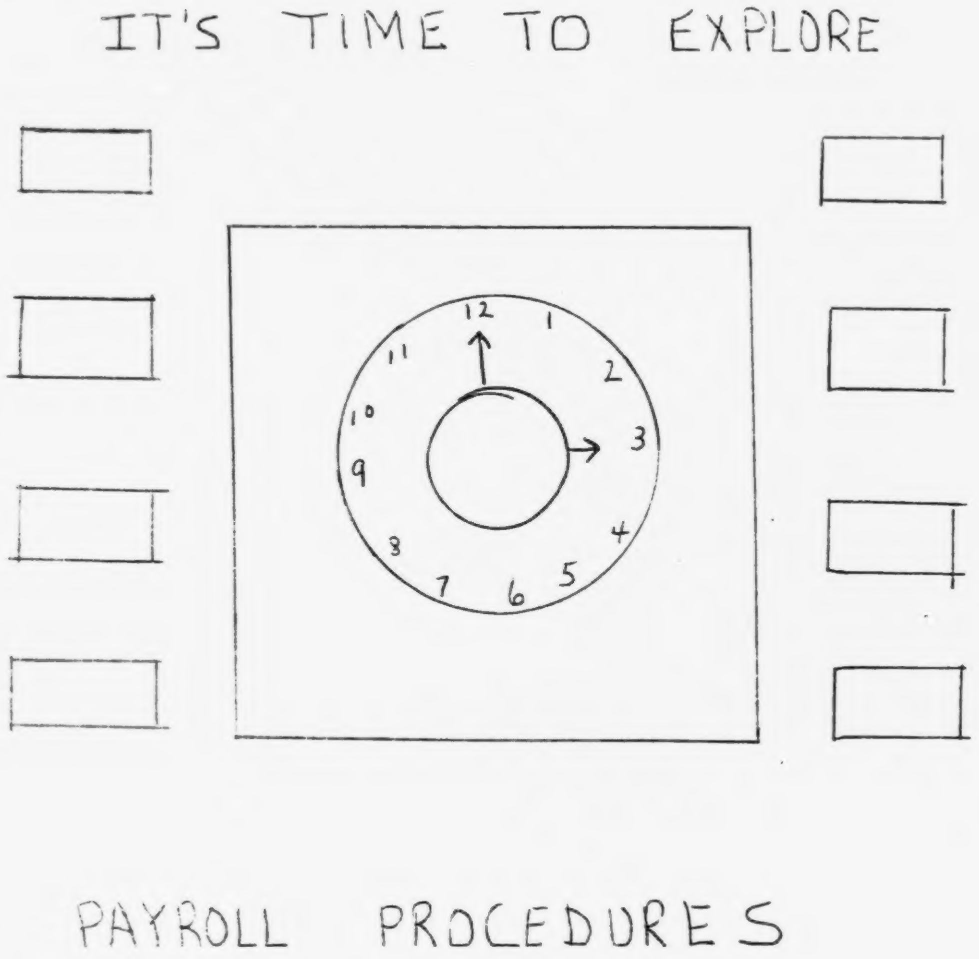
APPENDIX D

BULLETIN BOARD IDEA


YOU CAN FLY HIGH
Benefits
Challenging work
Excellent Salary
Good working Conditions
AS A PAYROLL CLERK

APPENDIX D

BULLETIN BOARD IDEA


IT'S TIME TO EXPLORE
12
1
2
3
4
5
6
7
8
9
10
11
PAYROLL PROCEDURES

Forms used might include:

1. Sample time cards from local businesses.
2. Payroll Register.
3. Earnings Record Form.
4. Tax Tables.
5. W-2 Form.
6. W-4 Form.

APPENDIX E

SUPPLEMENTARY MATERIALS

Books

Fairbank, Roswell E. and Robert A. Schultheis. (1980). *Applied Business Mathematics*. Cincinnati: South-Western Publishing Co.

Guerrieri, Donald, et al. (1985). *Accounting*. Boston: Houghton Mifflin Co.

Swanson, Robert M., et. al. (1982). *Accounting*. Cincinnati: South-Western Publishing Co.

Periodicals

Bruce E. Herbert. (1982, December). Accounting: Integrated Payroll Skills Pay Big Dividends . *Business Education Forum*, pp. 22-24.

Simulations

"Fish Tank Pegboard Payroll System." A pegboard accounting payroll system which is an excellent source to use in teaching and/or reviewing payroll procedures. South-Western Publishing Co., 2105 McDaniel Drive, Carrollton, TX 75006. Phone toll free: 1-800-457-8080.

"Picnic Basket Pegboard Payroll Simulation." South-Western Publishing Co., 2105 McDaniel Drive, Carrollton, TX 75006.

"Computerized Payroll Procedures." South-Western Publishing, address above.

Video Cassettes

"Payroll Gross Earnings" from Office Machines - Calculations Series, (1/2 inch video cassette BETA/VHS, 9 minutes)
RMI Media Productions, 2807 W. 47th Street, Shawnee Mission, KS 66205.

"Payroll, Net Earnings" from Office Machines - Calculations Series, (1/2 inch video cassette BETA/VHS, 12 minutes)
RMI Media Productions, 2807 W. 47th Street, Shawnee Mission, KS 66205.

UNIT VII

INTEREST

INTRODUCTION

Society is becoming more credit-oriented as opposed to paying for goods and services with cash. Therefore, the need for figuring interest is essential. In businesses, there are many different uses and needs for credit. Also, there is a great responsibility to be considered when using credit.

The content of this unit includes material relating to finding the amount due on loans, due dates, and amount of monthly payments in such related areas as notes, loans, and mortgages. Learning activities are also provided to enable the student to succeed in the area by using mental calculations as well as practicing with a calculator.

Upon successful completion of this unit, the student will have the necessary skills to figure interest.

COMPETENCIES

1. Determine due dates and number of days between dates.
2. Calculate simple interest by using formula and/or tables.
3. Compute compounded interest for different periods.
4. Figure amount due on a promissory note.
5. Understand the need and use for credit buying.
6. Find charges on installment loans.
7. Determine interest and payments on a mortgage.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Correctly apply formulas to figure simple and compound interest on loans for a stated time period with payments made annually, semiannually, quarterly, monthly, or daily.
2. Demonstrate knowledge of consumer credit by being able to calculate the cost of owning and using charge accounts and credit cards using basic math skills.
3. Demonstrate ability to determine mortgage payments.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to identify correctly the terminology for reading and filling out an interest-bearing note on a quiz with 80 percent accuracy.

1.2. The student will be able to determine the due date of a promissory note when time is given in months or days.

1.3. The student will be able to find the number of days between two dates by using a table and by manual calculation on a quiz.

2.1. The student will be able to calculate interest on a simple interest-bering loan for periods of one year or other time periods on a test with 90 percent accuracy.

2.2. The student will demonstrate ability to find principal when interest, rate and time are given by using the appropriate formula on a test with 80 percent accuracy.

2.3. The student will demonstrate ability to find the date when principal, interest and time are given by using the appropriate formula on a unit test with 80 percent accuracy.

2.4. The student will be able to calculate time when principal, rate and interest are given with 80 percent accuracy on a unit test.

2.5. Given sample problems, the student will demonstrate ability to compute interest for one year by manual calculations.

2.6. The student will demonstrate ability to compute interest for time periods other than one year by manual calculations on a unit test with 80 percent accuracy.

2.7. The student will be able to compute exact interest on a set of classroom problems given by the teacher.

2.8. Given a simple interest table, the student will be able to compute interest with 90 percent accuracy on a unit test.

3.1. Given different periods of payments, the student will be able to define length of time for each during classroom discussion.

3.2. Given different periods of payment, the student will be able to calculate compound interest in a classroom exercise.

4.1. The student will demonstrate ability to distinguish between an interest-bearing note and a discounted note by being able to calculate problems involving both types on a unit test with 70 percent accuracy.

5.1. The student will orally demonstrate a basic understanding of consumer credit by identifying types of and reasons for using business and personal credit.

5.2. The student will demonstrate ability to calculate net credit card sales and the cost of a credit card on a section test with 75 percent accuracy.

5.3. Given sample problems, the student will be able to calculate expenses incurred while using a charge account.

5.4. Through verbal and written discussion, the student will demonstrate an understanding of credit rating and its importance.

6.1. The student will demonstrate ability to compute a repayment schedule for a loan with 70 percent accuracy on a unit test.

6.2. Given amount financed and total amount of payments, the student will be able to calculate amount of finance charge for a level payment plan.

6.3. The student will be able to figure installment payments on a daily quiz with 75 percent accuracy.

6.4. The student will be able to compute finance charge with 70 percent accuracy on a unit test.

6.5. The student will be able to compute the finance charge rate per year with the use of an APR table as a classroom drill.

7.1. The student will be able to identify and use an amortization chart for figuring mortgage payments with 70 percent accuracy by completing a class exercise.

7.2. Given a case study, the student will be able to calculate mortgage payments manually.

7.3. The student will be able to determine the total cost of buying real estate with 70 percent accuracy on a unit test.

METHODOLOGY

This unit introduces the student to cost-of-loan concepts. In particular, it deals with interest computation of various types. A review of decimals and percentages is included. It is suggested that the pretest included in Appendix B be given to make the teacher aware of areas that may need to be stressed.

Textbooks, business forms, interest tables from local banks, teaching transparencies, and visual aids may be used in this unit. It is further suggested that section tests could be prepared and administered by the teacher. In addition, teacher-prepared quizzes may be given periodically to check the student's understanding of the material just covered.

The suggested graded competencies may be changed to allow for student ability and local school standards. Also, homework assignments are not included in Learning Activities. Students should be encouraged to rework all problems completed in class on a nightly basis.

SUGGESTED INTEREST APPROACHES

1. Use creative bulletin boards to reinforce formulas or thought-provoking ideas pertaining to interest.
2. Have students bring in articles or ads depicting sale price and interest rate.
3. Have students bring in articles or ads depicting interest rates on loans from various sources.
4. Invite guest speakers from local bank and/or mortgage company.
5. Incorporate role-playing as a learning activity. Students will pretend they are buying an item on credit. They must figure the finance charge and total payoff.
6. Students could visit a car lot and compare different rates of interest the dealers offer.

UNIT VII OUTLINE

INTEREST

I. Interest Period
    A. Terminology
        1. Interest-bearing note
        2. Parts of an interest-bearing note

B. Due dates
   1. Finding the due date when time is in months
   2. Finding the due date when time is in days
C. Number of days between dates
   1. Calculating the number of days between dates
   2. Using a table to find number of days between two dates

II. Simple Interest

A. Formulas for working with simple interest
   1. To find I (Interest)
   2. To find P (Principal)
   3. To find R (Rate)
   4. To find T (Time)
B. Interest-bearing notes
   1. Finding interest for one year
   2. Finding interest for a period other than one year
C. Finding exact interest
D. Finding interest by using interest tables

III. Compound Interest

A. Difference between compound interest and simple interest
B. Payment period
   1. Annually
   2. Semiannually
   3. Quarterly
   4. Monthly
   5. Daily

IV. Discounting Promissory Notes

A. Definition of discounted promissory note
B. Difference between discounted note and interest-bearing note

V. Consumer Credit

A. Types of Consumer Credit
   1. Business credit with other businesses
   2. Buying on time
B. Credit cards
   1. Finding net credit card sales
   2. Finding the cost of a credit card
C. Charge accounts
D. Credit rating
   1. Credit check
   2. What it can mean

VI. Installment Loans

A. Repayment schedule
B. Level payment plan
C. Installment payments
D. Service charge

E. Finding the finance charge rate
    1. APR (Annual percentage rate)
    2. Using APR table

VII. Mortgage

A. Using the amortization chart
B. Calculate monthly payments manually
C. Variables dealing with mortgages
    1. Closing cost
    2. Down payment

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to correctly identify the terminology for reading and filling out an interest-bearing note on a quiz with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: face value time date due date rate of interest payee maker	1. View transparency of an interest-bearing note or review one in textbook. 2. Label parts of a promissory note from terms given by teacher. 3. Fill in interest-bearing blank notes as provided by the teacher. 4. Complete daily quiz on filling out an interest-bearing note.

1.2. The student will be able to determine due date of a promissory note when time is given in months or days.

Subject Matter Content	Learning Activities
Finding due date when time is in months or days.	1. View teacher's demonstration for counting days in a month by using knuckles or rhyme. (Appendix A, 1.2)

2. Participate in oral drills on number of days in a month when called upon by the teacher.
3. Complete exercise from textbook or teacher-prepared exercise.
4. Complete daily quiz on finding due date.

1.3. The student will be able to find the number of days between two dates by using a table and by manual calculation on a quiz.

Subject Matter Content	Learning Activities
Method in determining the number of days between two dates	1. View teacher-made transparency of days-in-a-year chart. 2. Read assigned pages in text on manual calculation method. 3. View teacher's presentation on manual calculation method. 4. Complete an exercise on calculating number of days as assigned in textbook. 5. Complete daily quiz on calculating days.

2.1. The student will be able to calculate interest on a simple interest-bearing loan for periods of one year or other time periods on a unit test with 90 percent accuracy.

Subject Matter Content	Learning Activities
Formula for finding interest (I=P x R x T)	1. View teacher's chalkboard presentation for finding interest (I = Principal x Rate x Time). 2. Write formula in notebook. 3. Complete exercise on finding interest as assigned by the teacher.

2.2. The student will demonstrate ability to find principal when interest, rate and time are given by using the appropriate formula on a unit test with 80 percent accuracy.

Subject Matter Content

Formula for finding prinicpal ($P=\frac{I}{RXT}$)

Learning Activities

1. View teacher's presentation for finding principal (Principal = $\frac{\text{Interest}}{\text{Rate x Time}}$).
2. Write formula in notebook.
3. Memorize formula for finding principal.
4. Complete exercise on finding principal as assigned by the teacher.
5. Take daily quiz on finding the principal.

2.3. The student will demonstrate ability to find rate when principal, interest and time are given by using the appropriate formula on a unit test with 80 percent accuracy.

Subject Matter Content

Formula for finding rate ($R=\frac{\text{I for 1 year}}{P}$)

Learning Activities

1. View teacher's presentation for finding rate (Rate = $\frac{\text{Interest for 1 year}}{\text{Principal}}$).
2. Write formula in notebook.
3. Memorize formula.
4. Complete exercise on finding rate as assigned by the teacher.
5. Complete daily quiz on finding rate.

2.4. The student will be able to calculate time when principal, rate and interest are given with 80 percent accuracy on a unit test.

Subject Matter Content

Formula for finding time ($T = \frac{I}{P \times R}$)

Learning Activities

1. View teacher's presentation for finding time ($\text{Time} = \frac{\text{Interest}}{\text{Principal} \times \text{Rate}}$) NOTE: Time must be in years.
2. Write formula in notebook.
3. Memorize formula for finding time.
4. Complete exercise on finding time as assigned by the teacher.
5. Take a daily quiz on finding time.

2.5. Given sample problems, the student will demonstrate ability to compute interest for one year by manual calculations.

Subject Matter Content

Review of simple interest for one year formula ($I = P \times R$)

Learning Activities

1. Review formula for finding interest for one year (Interest = Principal x Rate).
2. Participate in oral drill on finding interest for one year.
3. Complete exercise on sample business problems as provided by the instructor.
4. View formulas on bulletin board display. (Appendix D)

2.6. The student will demonstrate ability to compute interest for time period other than one year by manual calculations on a unit test with 80 percent accuracy.

Subject Matter Content	Learning Activities
Review of simple interest formula for a period other than for one year (I= P x R x T)	1. Review formula for finding interest other than for one year (Interest = Principal x Rate x Time). 2. Complete exercises on finding interest other than for one year. 3. Complete daily quiz. 4. Practice finding interest other than for one year by working problems at the chalkboard. 5. View teacher's demonstration on figuring interest with the use of a calculator.

2.7. The student will be able to compute exact interest on a set of classroom problems given by the teacher.

Subject Matter Content	Learning Activities
Exact interest	1. View teacher's presentation on difference between banker's interest and exact interest (360 days or 365 days). 2. Complete exercise on finding exact interest. 3. Complete daily quiz on finding exact interest.

2.8. Given a simple interest table, the student will be able to compute interest with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Use of interest table to compute interest	1. View teacher-prepared transparency of simple interest table. 2. Complete oral exercise on finding interest by reading the table.

3. Complete written exercise on finding interest by using table.

4. Complete test on due dates and finding interest as prepared by the teacher.

3.1. Given different periods of payments, the student will be able to define length of time for each during classroom discussion.

Subject Matter Content

Pay periods
  Annual (year)
  Semiannual (6 months)
  Quarterly (3 months)
  Monthly (12 months)
  Daily (365 days)

Learning Activities

1. Read explanation in textbook on the length of time in each pay period.

2. Participate in oral review of length of pay periods.

3. Complete daily quiz on length of pay periods.

3.2. Given different periods of payment, the student will be able to calculate compound interest in classroom exercise.

Subject Matter Content

Compound interest

Learning Activities

1. View teacher's demonstration on calculating compound interest.

2. Complete exercise on compound interest.

3. Visit loan department of a local bank or finance company.

4. Complete daily quiz on finding compound interest.

5. Refer to compound interest in Unit V on Banking, Objective 8.2.

4.1. Student will demonstrate ability to distinguish between an interest-bearing note and a discounted note by being able to calculate problems involving both types on a unit test with 70 percent accuracy.

Subject Matter Content	Learning Activities
Difference between interest-bearing and discounted notes	1. View teacher's explanation of what a discounted note is. 2. View teacher's explanation of difference between an interest-bearing note and a discounted note. 3. Complete exercise on discounted note.

5.1. Student will orally demonstrate a basic understanding of consumer credit by identifying types of and reasons for using business and personal credit.

Subject Matter Content	Learning Activities
Types of credit: business credit with other businesses buying on time	1. Review text or teacher-prepared material on the different kinds of credit available. 2. Participate in oral review of types of credit. 3. Prepare a short, written report on uses of credit.

5.2. Student will demonstrate ability to calculate net credit card sales and the cost of a credit card on a section test with 75 percent accuracy.

Subject Matter Content	Learning Activities
Net credit card sales Cost of a credit card	1. View presentation on purposes of a credit card. 2. View presentation on how to find net credit card sales.

3. Complete exercise on calculating net credit card sales.
4. View demonstration on use of a calculator to figure net credit card sales.
5. Complete daily quiz on figuring net credit card sales.
6. View teacher's presentation associated with various expenses of credit card usage.
7. Complete exercise on credit cost.

5.3. Given sample problems, the student will be able to calculate expenses incurred while using a charge account.

Subject Matter Content	Learning Activities
Charge accounts	1. Read assigned text on difference between using a credit card and a charge account. 2. View teacher's presentation on calculating total charges when using a charge account. 3. Complete exercise on calculating total charges of a charge account. 4. Participate in simulation activities involving charge accounts.

5.4. Through verbal and written discussion, the student will demonstrate an understanding of credit rating and its importance.

Subject Matter Content	Learning Activities
Credit rating: Credit check Effects of credit rating	1. Participate in class discussion on the importance of a good credit rating and reasons why businesses might check a customer's rating.

2. Participate in simulated cases where a business is checking a potential customer's credit rating.
3. Write a paragraph on topic of credit rating.
4. Listen to guest speaker from a local credit bureau.

6.1. The student will demonstrate ability to compute a repayment schedule for a loan with 70 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Repayment schedule	1. View teacher's presentation on how to find finance charge and total payments.
	2. Complete exercises on calculating finance charge and total payments.
	3. View teacher's demonstration on using a calculator to calculate finance charge and total payments.
	4. Complete daily quiz on finance charge and total payments.

6.2. Given amount financed and total amount of payments, the student will be able to calculate amount of finance charge for a level payment plan.

Subject Matter Content	Learning Activities
Level payment plan monthly payment finance charge	1. Listen to teacher's explanation of level payment plan.
	2. View teacher's presentation on calculating finance charge in level payment plan.
	3. Complete exercise on calculating finance charge.

4. Participate in daily quiz on calculating finance charge.

6.3. The student will be able to figure installment payments on a daily quiz with 76 percent accuracy.

Subject Matter Content	Learning Activities
Installment payments	1. View teacher's presentation on computing amount for installment payment. 2. Complete exercise on figuring amount of each payment. 3. Complete daily quiz on installment payments. 4. Prepare a case study from information given by teacher to figure your installment payments.

6.4. The student will be able to compute finance charge with 70 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Finance charge per $100	1. View teacher's presentation on figuring finance charge (Finance charge x 100, then divide by amount financed). 2. Complete exercise on figuring finance charge. 3. Complete daily quiz on figuring finance charge.

6.5. The student will be able to compute the finance charge rate per year with the use of an APR table as a classroom drill.

Subject Matter Content	Learning Activities
Finance charge rate APR table (annual percentage rate) Truth in Lending Act	1. View teacher-prepared transparency of APR table as teacher explains how to use it. 2. Complete exercise on figuring finance charge rate with use of APR table. 3. View teacher's presentation of Truth in Lending Act.

7.1. The student will be able to identify and use an amortization chart for figuring mortgage payments with 70 percent accuracy by completing class exercise.

Subject Matter Content	Learning Activities
Amortization chart	1. View teacher's explanation on the use of an amortization chart. 2. View teacher's presentation of amortization chart. Follow chart in textbook as teacher explains. 3. Complete exercise on mortgage payments with amortization table.

7.2. Given a case study, the student will be able to calculate mortgage payments manually.

Subject Matter Content	Learning Activities
Mortgage payments figured manually Review similarities between compound interest and depreciating principal	1. Review teacher's presentation on figuring compound interest. 2. View teacher's presentation for figuring depreciating principal on a mortgage and take note of similarities. 3. Participate in oral discussion about the similarities between the two procedures.

4. Complete case study individually or in small groups on figuring mortgage payments for a specific loan for a given rate.

5. View presentation of guest speaker from a local lending or mortgage office.

6. Complete exercise on figuring mortgage interest payments.

7. Bring in ads listing prices of homes for sale to compare mortgage rates.

7.3. The student will be able to determine the total cost of buying real estate with 70 percent accuracy on a unit test.

Subject Matter Content

- Mortgage variables
  - Closing cost (usually 1 to 3 percent of purchase price)
  - Legal fees
    - Insurance
    - Prepaid interest
    - Property taxes
    - Termite inspection
    - Land surveys
  - Down payment (usually 10 to 25 percent of sale price)

Learning Activities

1. Listen as teacher explains the many variables in the closing cost for a mortgage.

2. Write the various costs in acquiring a mortgage in notebook.

3. Participate in oral review of of variables in the closing cost of a mortgage.

4. View teacher's presentation of amount to be mortgaged after down payment is made.

5. Complete exercise on finding principal borrowed or amount to be mortgaged.

6. Complete Unit V Posttest. (Appendix B)

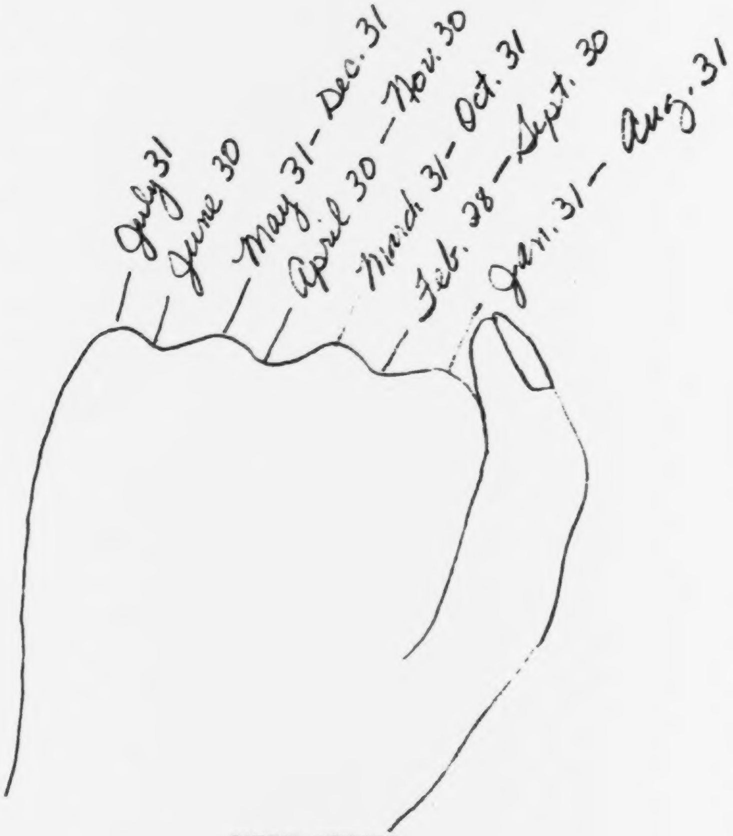
APPENDIX A

LEARNING ACTIVITY FOR 1.2A

DAYS IN A MONTH

KNUCKLE METHOD

Clench fist as illustrated and begin counting months on first knuckle and next month between. Months that you say when you touch a knuckle bone have 31 days; those months between kunckles have 30 days (except February which has 28 days). When you get to the fourth and last knuckle, start over. (Don't forget leap year!)


July 31
June 30
May 31 - Dec. 31
April 30 - Nov. 30
March 31 - Oct. 31
Feb. 28 - Sept. 30
Jan. 31 - Aug. 31

RHYME METHOD

Thirty days has September,
April, June, and November.
All the rest have 31
Except February, which has 28.
(Don't forget leap year.)

APPENDIX A

WORD GAME

Word List

Interest
Principal
Rate
Time
Duedate
Compound
Credit
Payee
Maker
APR
Installment
Exact
Mortgage

P	A	Y	E	E	F	I	N	I
R	D	I	N	C	G	I	N	N
I	N	T	E	R	E	S	T	S
N	T	E	A	E	R	E	I	T
C	S	T	T	D	I	S	M	A
I	E	V	E	I	R	A	E	L
P	X	Y	I	T	K	T	N	L
A	A	T	E	E	A	R	E	M
L	C	S	R	D	T	I	N	E
G	T	T	E	O	C	A	L	N
C	U	U	L	A	R	T	E	T
!	D	N	U	O	P	M	O	C
M	O	R	T	G	A	G	E	!

When you are finished circling all the words, write down the unused letters to make a sentence about interest.

- - - - - - -   - - - - - - - -   - -   - - - -

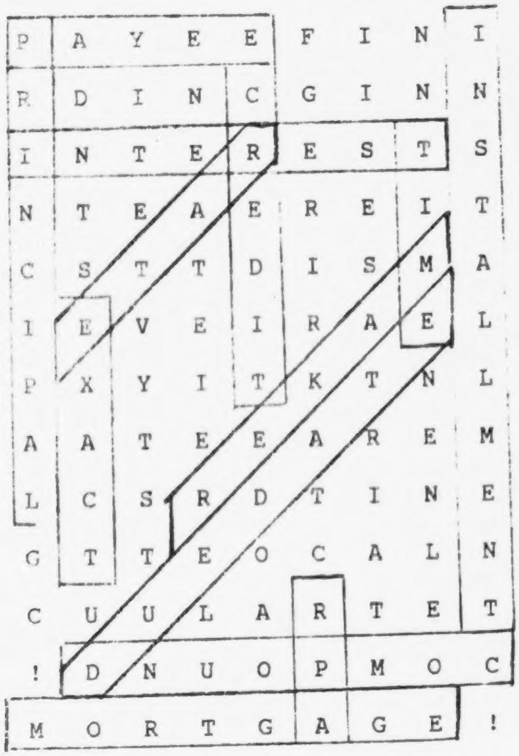
- - - - - - - - - - -   - -   - - - - - - - - -   - -

APPENDIX A

WORD GAME

KEY

Word List
- Interest
- Principal
- Rate
- Time
- Duedate
- Compound
- Credit
- Payee
- Maker
- APR
- Installment
- Exact
- Mortgage



P	A	Y	E	E	F	I	N	I
R	D	I	N	C	G	I	N	N
I	N	T	E	R	E	S	T	S
N	T	E	A	E	R	E	I	T
C	S	T	T	D	I	S	M	A
I	E	V	E	I	R	A	E	L
P	X	Y	I	T	K	T	N	L
A	A	T	E	E	A	R	E	M
L	C	S	R	D	T	I	N	E
G	T	T	E	O	C	A	L	N
C	U	U	L	A	R	T	E	T
!	D	N	U	O	P	M	O	C
M	O	R	T	G	A	G	E	!

When you are finished circling all the words, write down the unused letters to make a sentence about interest.

FINDING INTEREST IS VERY

INTERESTING TO CALCULATE !!

APPENDIX B

UNIT VII

PRETEST AND KEY

1. How many days are in a year? How many are in leap year?

2. How many days are in the month of November?

3. The formula to find interest for one year is: Interest = Principal x Rate x Time. Knowing this, find the interest on the following problems:

   (a) $300 loan at 6% for 1 year = ____

   (b) $1200 loan at 5% for 2 years = _____

   (c) $500 loan at 8% for 1/2 year = _____

4. If interest on a note is paid quarterly, it is to be paid every _____ months.

5. If the interest on a loan is paid before the maker receives the money, it is known as a discounted note. How much would the maker of this note receive on the day the loan was made?

   $6,000 loan at 11% for 1 year ________

6. A person who does not have or does not wish to use cash to pay for an item, may purchase the item by using a ___________ or _________, whichever the business will accept.

7. When purchasing an item without cash, the buyer not only pays the cash price, but a finance charge as well. If a lawnmower sells for $300 cash and can be purchased for $ down and $43 in eight monthly payments, what is the installment price? ____________

8. A homeowner wants to buy a $90,000 home by putting $20,000 down and assuming a mortgage loan on the remainder. How much will the principal of his mortgage be? ____________

KEY:

1. 365
2. 30
3. a) 18   b) 120   c) 20
4. 3
5. $5340
6. Credit card, charge account
7. $344
8. $72,000

APPENDIX B

POSTTEST

INTEREST

Match the terms of a promissory note with the correct answers.

$2,000 July 16, 1986

Eighteen Months After Date I Promise to pay to

the order of Southwest Loan Company

Two Thousand and No/100xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxDollars

Payable at Southwest Loan Company

Value received with interest at 12%

No. _____ Due January 16, 1987 Jerry Henchly

---

1. Date of the note _____
2. Interest rate _____
3. Time _____
4. Maker _____
5. Principal (Face) _____
6. Payee _____
7. Find the due date of a note dated January 1 for 1 month. _________
8. Find the number of days between the dates of May 31 through August 27. _________
9. What are the proceeds received on a non-interest bearing note for $1,600 at 12% for 3 months? _________
10. Glenda borrowed $560 from Jonathan for 3 months. The interest she paid back was $16.80. What is the interest rate? _________
11. An electric range can be purchased for $330 cash, or for credit at $30 down and 24 monthly payments of $14.75 each. What is (a) installment price? __________ (b) finance charge? __________
12. Using an APR table, find (a) installment price, (b) finance charge, and (c) annual percentage rate for a slide projector that lists for $130 cash or $20 down and $7 for 18 monthly payments.
    (a) ______________ (b) ______________ (c) ______________

13. On April 5, Janet discounted a note at her bank for $500. She will pay back the non-interest bearing note in 6 months. The discounted interest amounted to $30. With this information, answer the following questions:
    a) Proceeds Janet received? ____________
    b) Due date of note? ____________
    c) Amount Janet owed at maturity? ____________
    d) Rate of exact interest? ____________

14. Kevin bought a bicycle priced at $150. He was charged 3% more for using a credit card for his purchase. What is his total cost for the bike? ____________

15. John pays an annual $25 membership fee for his credit card. He also pays 7 cents per purchase. Last year he made 200 purchases. What was the cost of the card to John? ____________

16. Using a compound interest table, find the compound interest on a $600 loan at 8% for 3 years compounded semi-annually.
    Compound amount? ____________ Compound Interest? ____________

17. Using an amortization chart, find the monthly payment and total interest cost of a house selling for $55,000 on a 20-year loan at 12%.
    Monthly payments? ____________ Total Interest cost? ____________

APPENDIX B

POSTTEST

INTEREST

KEY

1. July 16, 1987
2. 12%
3. 18 months
4. Jerry Benchly
5. $2000
6. Southwest Loan Co.
7. February 28
8. 90 days
9. $1552
10. 12%
11. $384

    $ 54
12. a) $146.00

    b) $ 16.00

    c) 11%
13. a) $470.00

    b) October 5

    c) $500.00

    d) 12%
14. $154.50
15. $ 39.00
16. $760.95

    $160.95
17. a) $605.60

    b) $145,344.00

APPENDIX C

EVALUATION AND TESTING

INTEREST

Ways to Evaluate Pupil Growth

1. Class Participation
2. Homework
3. Observation
4. Quizzes
5. Tests

EQUIPMENT AND SUPPLIES

Student:

1. Textbook
2. Notebook
3. Pencil

Teacher:

1. Textbook and Manual
2. Overhead Projector
3. Transparencies
4. Worksheet Handouts
5. Chalkboard/Chalk
6. Word Game
7. Amortization Chart
8. APR Table
9. Truth in Lending Act
10. Number of Days in a Year Chart

APPENDIX D

BULLETIN BOARD

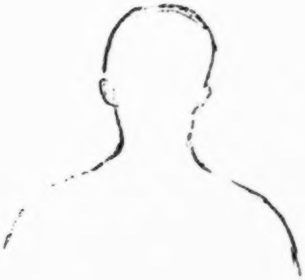
INTEREST

For best effect, the bulletin board should be done in brightly colored background with large black lettering. This display could be left up for the duration of the unit. (Be sure to take it down or cover it up before quizzes or tests.)

GET INTERESTED IN INTEREST

$$I = P \times R$$
(for 1 year)

$$R = \frac{I}{P} \text{ for 1 year}$$



$$I = P \times R \times T$$

$$P = \frac{I}{R \times T}$$

$$T = \frac{I}{P \times R}$$

APPENDIX E

SUPPLEMENTARY MATERIALS

Books

Fairbank, Roswell E. and Robert A. Schultheis. (1980). Applied Business Mathematics. Cincinnati: South-Western Publishing Co.

Slater, Jeffrey. (1983). Practical Business Math Procedures. Richard D. Irwin, Inc.

Booklets/Pamphlets

"Adventures With Arithmetic, Percent." Lawrence W. Swienciki; Creative Publications, 1974. Games involving math skills with percents/decimals for students to use as classwork or homework assignments.

Periodicals

Marcia B. Carter. (1984, September/October). Hand-Held Calculator: Crutch or Tool? The Balance Sheet, pp. 33-34.

Video Cassettes

"Credit" from Common Cents - A Series,
(3/4 or 1/2 inch video cassette, 15 minutes)
Agency for Instructional Technology, Box A, Bloomington, IN 47402

"The Case of the Powerful Percent" from the Counterplot Series,
"The Case of the Quick Change Artist" from the Counterplot Series,
(3/4 or 1/2 inch video cassette, 19 minutes)
Agency for Instructional Technology, Box A, Bloomington, IN 47402

UNIT VIII

RETAILING

INTRODUCTION

We are all somehow brought into the retailing business in one way or the other. Whether we are business owners in the future or simply consumers, the material in this unit will prove to be useful and informative. The purpose of this unit is to make available information about the purchasing of merchandise to sell, the pricing of merchandise, the selling of merchandise, and the determining of net profit or net loss on sales.

Upon completion of this unit, the student will have the necessary skills to understand the basic workings of a retail business. The information acquired should make them more informed consumers or knowledgeable business people.

COMPETENCIES

1. Identify purchasing chain from producer to consumer.
2. Identify differences in purchase order and purchase invoice.
3. Prepare and check purchase invoice.
4. Compute cash discounts.
5. Compute trade discounts.
6. Compute the results of a series of discounts.
7. Figure transportation charges and determine responsibility for payment.
8. Compute price of goods based on selling price, cost and markup rate.
9. Determine profit and losses.
10. Complete cash proof forms.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Demonstrate correct techniques for dealing with various aspects of retailing.

2. Correctly apply fundamental math skills to solve retailing related math problems.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to identify correctly the terminology relating to the purchasing chain with 90 percent accuracy on a unit test.

1.2. The student will be able to identify correctly the order followed in the purchasing chain with 90 percent accuracy on a unit test.

1.3. The student will be able to comprehend the differences between a retailer receiving a discount from a wholesaler and a retailer granting a discount to a customer.

2.1. The student will be able to identify correctly the terminology relating to purchase invoices and purchase orders with 90 percent accuracy on a unit test.

2.2. Given completed purchase invoices and purchase orders, the student will be able to identify the basic differences between the two with 80 percent accuracy on a unit test.

3.1. The student will be able to identify the terminology relating to purchase invoices with 90 percent accuracy on a unit test.

3.2. Given two blank forms, the student will be able to complete the purchase invoices with 100 percent accuracy.

3.3. Given three completed purchase invoices, the student will be able to check the accuracy of the extensions with 90 percent accuracy.

3.4. Given three exercises, the student will be able to read the terms of sale with 80 percent accuracy on a unit test.

3.5. Given six exercises, the student will be able to determine the due date on a purchase invoice with 80 percent accuracy.

3.6. Given one blank invoice, the student will be able to complete the invoice with the following information: (1) unit prices and extensions made and checked, (2) invoice totaled, and (3) due date of invoice determined. This will be done with 100 percent accuracy.

3.7. Given a chart with five months purchases and returns shown, the student will be able to determine the net purchases, total purchases, total returns, and total net purchases with 80 percent accuracy.

4.1. The student will be able to identify the terminology relating to cash discounts with 80 percent accuracy on a unit test.

4.2. Given a list of dates when several invoices were received, the student will be able to determine if a cash discount will be allowed and how much it will be with 90 percent accuracy.

4.3. Given a list of six invoice dates, the student will be able to find the amount of the cash discount and the cash price with 90 percent accuracy.

4.4. Given five word problems, the student will be able to determine amount saved by borrowing money to take the cash discount with 80 percent accuracy.

4.5. Given a list of five invoice prices, the student will be able to find the rate of cash discount with 80 percent accuracy.

5.1. The student will be able to identify terminology relating to trade discounts with 80 percent accuracy on a unit test.

5.2. The student will be able to discuss reasons trade discounts are given and compute trade discounts with 80 percent accuracy on a unit test.

5.3. Given a list with six items, the student will be able to figure trade discounts and rate of trade discounts with 80 percent accuracy.

6.1. The student will be able to identify terminology relating to series of discounts with 90 percent accuracy on a unit test.

6.2. Given a list of ten prices, the student will be able to determine invoice prices and amount of discounts when there is a series of discounts given with 90 percent accuracy.

6.3. Given six series of discounts, the student will be able to find the single discount equivalent using the complement with 80 percent accuracy.

6.4. The student will be able to discuss the order in which a trade discount and a cash discount should be taken when they are offered on the same item. The student will be able to do this with 90 percent accuracy on a unit test.

6.5. Given five items with a different list price on each, the student will be able to determine the cash price if the item is paid for within the discount period. This activity should be done with 80 percent accuracy.

7.1. The student will be able to correctly identify terminology relating to transportation charges with 90 percent accuracy on a unit test.

7.2. Given five word problems, the student will be able to determine whether the buyer or the seller will be paying the transportation charges. This activity should be completed with 80 percent accuracy.

7.3. Given the same five exercises of 7.2., the student will be able to figure the total cost of the goods.

8.1. The student will be able to correctly identify terminology relating to the pricing of goods with 80 percent accuracy.

8.2. Given six exercises, the student will be able to figure selling price given the rate of markup desired on the selling price with 80 percent accuracy.

8.3. Given six exercises, the student will be able to determine the markup rate based on selling price with 80 percent accuracy.

8.4. Given six exercises, the student will be able to determine selling price to give the rate of markup desired on cost with 80 percent accuracy.

8.5. Given six exercises, the student will be able to determine the rate of markup based on the cost with 80 percent accuracy.

8.6. The student will be able to read the chart covering the converting of markup from one base to the other base and complete applied business application problems with 80 percent accuracy.

8.7. The student will be able to discuss pricing codes and interpret them with 80 percent accuracy on a unit test.

9.1. The student will be able to identify terminology relating to profit and loss with 90 percent accuracy on a unit test.

9.2. The student will be able to state the formulas for net profit and net loss with 100 percent accuracy on a unit test.

9.3. Given ten exercises, the student will be able to determine if there were a net profit or a net loss and the amount of this profit or loss. This activity should be completed with 90 percent accuracy.

10.1. The student will be able to identify terminology relating to sales records with 90 percent accuracy on a unit test.

10.2. Given five exercises, the student will be able to complete cash proof forms with 90 percent accuracy.

METHODOLOGY

This unit introduces to the student a variety of topics concerning the retailing business. The student will be shown how to distinguish between a purchase order and a purchase invoice. They will learn how to make purchase decisions, price merchandise, figure net profit or net loss on sales, and finally how to prove cash when working on a cash register.

Textbooks, business forms and problems, visual aids, teaching transparencies, guest speakers, and field trips will be used in this unit.

There are five section tests provided with answer keys. If desired, the teacher may select items from each section test to make one unit test to be given upon the completion of Unit VIII. In addition, the teacher may desire to give quizzes periodically throughout the unit.

The accuracy levels assigned in the specific performance objectives may be adjusted to best suit the individual school system's requirements or the teacher's desires.

SUGGESTED INTEREST APPROACHES

1. Have students visit several retail businesses and inquire as to the method used to prove cash at the end of the day of business.
2. Take the students on a field trip to a large retail business. Inform the public relations person in advance the aspects of the retail business you would like for the students to be informed about.
3. Have guest speakers from large retail outlets come to the classroom to discuss aspects of the retail business you want the students to be informed about.
4. Have the students complete drills on the fundamental math skills needed to figure prices and do other exercises required in this unit. These drills may take the form of printed forms or oral drills directed by the teacher as the students compete with each other for bonus points.

UNIT VIII OUTLINE
RETAILING

I. Introduction to Retailing

  A. Terminology
    1. Producer
    2. Wholesaler
    3. Retailer
    4. Consumer
  B. Purchasing Chain
  C. Discounts

II. Purchase Orders and Purchase Invoices

  A. Terminology
    1. Purchase Order
    2. Purchase Invoice
    3. Vendor
    4. Purchase Requisition
    5. Bill of Lading
    6. Receiving Period
  B. Differences in Purchase Order and Invoice

III. Preparing and Checking Purchase Invoices

  A. Terminology
    1. Terms of Sale
    2. Extensions
    3. Due Date
    4. Purchase Returns and Allowances
    5. Net Purchases
    6. On Account
    7. Credit Period
  B. Preparation
  C. Extensions
  D. Terms of Sale
  E. Due Date
  F. Figure Net Purchases

IV. Cash Discounts

  A. Terminology
    1. Cash Discount
    2. Cash Price
    3. Discount Period
    4. EOM
  B. Read and Interpret Terms
  C. Calculate Discount
    1. Determine if discount is allowed
    2. Business Applications

- D. Amount Saved from Cash Discount
- E. Find Rate

V. Trade Discounts

- A. Terminology
  - 1. Discount Sheet
  - 2. Invoice Price
  - 3. List Price
  - 4. Quantity Discount
  - 5. Trade Discount
- B. Trade Discounts and Computations
- C. Computing Rate of Trade Discount Granted

VI. Series of Discounts

- A. Terminology
  - 1. Series of Discounts
  - 2. Complements
- B. Calculate Series of Discounts
- C. Determine Complements
- D. Calculate Cash and Trade Discounts Used Together
  - 1. Order of Discounts
  - 2. Applications

VII. Transportation Charges

- A. Terminology
  - 1. Buying Expenses
  - 2. Total Cost
  - 3. F.O.B.
- B. Determine Who Pays
- C. Calculate Charges

VIII. Pricing Goods Based on Selling Price, Cost, and Markup Rate

- A. Terminology
  - 1. Pricing Goods
  - 2. Selling Price
  - 3. Cost
  - 4. Markup Rate or Gross Profit
- B. Find Selling Price to Give Rate of Markup Desired on Selling Price
- C. Determine Rate of Markup Based on Selling Price
- D. Find Selling Price to Give Rate of Markup Desired on Cost
- E. Determine Rate of Markup Based on Cost
- F. Convert Markup Percent from Selling Price Base to Cost Base
  - 1. Explain Chart
  - 2. Discuss Applications
- G. Determine Catalog Prices

IX. Net Profit and Net Loss

- A. Terminology
  - 1. Gross Profit
  - 2. Net Profit
  - 3. Net Loss
  - 4. Overhead Expenses

X. Checking Sales Records

- A. Terminology
  - 1. Cash Register
  - 2. Proving Cash
  - 3. Cash Short
  - 4. Cash Over
  - 5. Change Fund
- B. Cash Proof Forms

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to identify correctly the terminology relating to the purchasing chain with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: producer wholesaler retailer consumer	1. Define a list of vocabulary words using textbook. 2. Read textbook pages covering terms.

1.2. The student will be able to identify correctly the order followed in the purchasing chain with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
The order that is followed when goods are purchased from the producer, wholesaler, or retailer.	1. View bulletin board as the teacher explains the order of purchasing. 2. Read textbook pages covering this topic. 3. Class discussion on order of purchasing.

1.3. The student will be able to comprehend the differences between a retailer receiving a discount from a wholesaler and a retailer granting a discount to a customer.

Subject Matter Content	Learning Activities
Difference between a retailer granting or receiving a discount	1. View bulletin board as teacher explains when a retailer gives a discount to a customer and receives a discount from a wholesaler. 2. Read textbook pages covering this topic. 3. Relate true life experiences when asked by the teacher about purchases made when granted a discount by a retailer.

2.1. The student will be able to identify correctly the terminology relating to purchase invoices and purchase orders with 90 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: purchase order purchase invoice receiving period vendor purchase requisition bill of lading	1. Read material on this topic in textbook. 2. Record notes as teacher lectures. 3. View transparency of purchase order and purchase invoice. (Appendix A, 2.1)

2.2. Given completed purchase invoices and purchase orders, the student will be able to identify the basic differences between the two with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Differences that exist between the purchase order and the purchase invoice	1. Review transparency on purchase order and purchase invoice as the teacher discusses the basic differences. (Appendix A, 2.1)

2. Students will bring in a purchase order and a purchase invoice from local businesses.

3. Read textbook pages on this topic.

3.1. The student will be able to identify the terminology relating to purchase invoices with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: terms of sale extensions due date	1. Check accuracy of definitions during oral discussion. 2. Read assigned pages in textbook. 3. Complete word search puzzle covering some of the terms for objectives 1.1 to 3.1. (Appendix A, 3.1)

3.2. Given two blank forms, the student will be able to complete the purchase invoices with 100 percent accuracy.

Subject Matter Content	Learning Activity
Preparing purchase invoices	1. Review transparency of a purchase invoice as teacher explains what is to be completed on the blank invoice forms. (Appendix A, 2.1) 2. Complete two invoice forms provided by the teacher as she supervises. 3. Bring in blank invoice forms to be used for this activity.

3.3. Given three completed purchase invoices, the student will be able to check the accuracy of the extensions with 90 percent accuracy.

Subject Matter Content	Learning Activities
Checking extensions on a purchase invoice	1. View work on chalkboard as teacher demonstrates correct method used in the checking of extensions (for example, 20 cases at $5.50 a case equals $110.00). 2. Read textbook pages assigned on this topic.

3.4. Given three exercises, the student will be able to read the terms of sale with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Reading of terms of sales such as: 2/10,N/30 5/10 EOM 2/10,1/20,N/30	1. View examples worked on chalkboard on reading of terms of sale. 2. Complete exercises assigned from workbook or textbook covering this topic. 3. Students will bring in an invoice with the terms of sale stated.

3.5. Given six exercises, the student will be able to determine the due date on a purchase invoice with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining due date of a purchase invoice.	1. View transparency on using knuckles to determine the length of the months in a year. (Appendix A, 3.5)

2. Complete exercises assigned by teacher on this topic.
3. Read textbook pages covering this topic.

3.6. Given one blank invoice, the student will be able to complete the invoice with the following information: (1) unit prices and extensions made and checked, (2) invoice totaled, and (3) due date of invoice determined. This will be done with 100 percent accuracy.

Subject Matter Content	Learning Activities
Completion of an invoice including: unit prices extensions that are checked total of invoice due date calculated	1. Review transparency on purchase invoice. (Appendix A, 2.1) 2. Complete one purchase invoice provided by the instructor.

3.7. Given a chart with five months purchases and returns shown, the student will be able to determine the net purchases, total purchases, total returns, and total net purchases with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining net purchases, total returns, total purchases, and total net purchases	1. View chalkboard as the teacher explains the method to be used in determining net purchases. 2. Work exercises chosen by instructor in workbook. 3. Complete Section I Test covering 1.1 through 3.7. (Appendix B)

4.1. The student will be able to identify the terminology relating to cash discounts with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: cash discount cash price discount period EOM	1. Read and discuss various definitions of terms. 2. Read pages assigned in textbook. 3. View samples teacher displays of invoices with cash discount terms highlighted. 4. Participate in class discussion on the advantages of taking cash discounts.

4.2. Given a list of dates when several invoices were received, the student will be able to determine if a cash discount will be allowed and how much it will be with 90 percent accuracy.

Subject Matter Content	Learning Activities
Interpreting terms of sale such as: 2/10,N/30 3/10,2/20,N/30 3/10,EOM	1. View transparency on interpreting of terms. (Appendix A, 4.2) 2. View film covering retailers and their purchasing decisions. 3. Orally interpret terms from textbook as called on by the teacher.

4.3. Given a list of six invoice dates, the student will be able to find the amount of the cash discount and the cash price with 90 percent accuracy.

Subject Matter Content	Learning Activities
Calculating cash discount rate and cash price	1. View work on the chalkboard covering discount rate and cash price.

2. Read material assigned in textbook.
3. Complete exercises assigned in workbook.

4.4. Given five word problems, the student will be able to determine amount saved by borrowing money to take the cash discount with 80 percent accuracy.

Subject Matter Content	Learning Activities
Borrowing cash to get cash discount.	1. Record notes as instructor lectures on this topic and gives examples on the blackboard. 2. Complete exercises chosen by the instructor.

4.5. Given a list of five invoice prices, the student will be able to find the rate of cash discount with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining rate of cash discount using the following formula: Rate of Cash Discount= Cash Discount divided by invoice price	1. View exercises worked out on board by instructor. 2. Read pages assigned in textbook covering this topic. 3. Work exercises from workbook as assigned by instructor. 4. Complete Section II Test covering objectives 4.1 through 4.5. (Appendix B)

5.1. The student will be able to identify terminology relating to trade discounts with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: discount period invoice price list price trade discount quantity discount	1. Record notes as the instructor discusses terms and gives examples. 2. Read pages assigned by instructor in textbook. 3. Prepare note cards with words and definitions related to trade discounts.

5.2. The student will be able to discuss reasons trade discounts are given and compute trade discounts with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Determining reasons trade discounts are given to the retailer from the wholesaler	1. Read pages assigned in textbook. 2. Record notes as the instructor discusses topic. 3. Student will answer questions directed to them by the instructor on this topic. 4. View presentation from a guest speaker who owns a retail business and can speak on the subject of retailing. 5. Bring in invoices from local retailers and present oral report to the class on discounts.

5.3. Given a list with six items, the student will be able to figure trade discounts and rate of trade discounts with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining trade discounts and rate of trade discounts	1. View examples worked on chalkboard. 2. Complete exercises from workbook.

6.1. The student will be able to identify terminology relating to series of discounts with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: series of discounts complement	1. Check accuracy of definitions during oral discussion. 2. Read pages assigned in textbook.

6.2. Given a list of ten prices, the student will be able to determine invoice prices and amount of discounts when there is a series of discounts given with 90 percent accuracy.

Subject Matter Content	Learning Activities
Determining trade discounts when there is a series of discounts offered	1. View chalkboard as the instructor explains the procedure to follow and works out an example. 2. Read pages assigned in textbook. 3. Work exercises chosen by the instructor.

6.3. Given six series of discounts, the student will be able to find the single discount equivalent using the complement with 80 percent accuracy.

Subject Matter Content	Learning Activities
Finding complements	1. Record notes as the instructor discusses complements. 2. View example worked on blackboard. 3. Answer questions directed by teacher concerning complements. 4. Work exercises chosen by instructor.

6.4. The student will be able to discuss the order in which a trade discount and a cash discount should be taken when they are offered on the same item. The student will be able to do this with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Determining order trade and cash discounts should be taken when they are offered on the same item	1. Read pages assigned in textbook. 2. View example worked on the board by the instructor. 3. Answer questions directed by the teacher concerning this topic.

6.5. Given five items with a different list price on each, the student will be able to determine the cash price if the item is paid for within the discount period. This activity should be done with 80 percent accuracy.

Subject Matter Content	Learning Activities
Calculating cash prices when the item is paid	1. Read pages assigned in textbook.

for within the discount period allowed by the wholesaler	2. Record notes as the teacher discusses the decisions a retailer makes concerning discounts. 3. Complete exercises chosen by the instructor. 4. Complete Section III Test covering 5.1 through 6.5. (Appendix B)

7.1. The student will be able to correctly identify terminology relating to transportation charges with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: buying expenses total cost f.o.b.	1. Write a definition of each term in class notebook on transportation charges. 2. View guest speaker's presentation on the many expenses that enter into the cost of goods.

7.2. Given five word problems, the student will be able to determine whether the buyer or the seller will be paying the transportation charges. This activity should be completed with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining who is to pay the transportation charges on goods that are purchased from the wholesaler	1. View example worked on the chalkboard by the instructor. 2. View bulletin board as the instructor explains the many factors that increase the cost of goods to the retailer. 3. Complete exercises chosen by the instructor.

7.3. Given the same five exercises of 7.2, the student will be able to figure the total cost of the goods with 80 percent accuracy.

Subject Matter Content	Learning Activities
Calculating total cost of goods	1. View example worked on the chalkboard by the instructor. 2. Complete exercises assigned by the teacher.

8.1. The student will be able to correctly identify terminology relating to the pricing of goods with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: pricing goods selling goods cost markup	1. Check accuracy of definitions during oral discussion. 2. View film covering the retailer and the decisions that are made concerning the pricing of the goods that are sold. 3. Read pages assigned in textbook.

8.2. Given six exercises, the student will be able to figure selling price given the rate of markup desired on the selling price with 80 percent accuracy.

Subject Matter Content	Learning Activities
Calculating selling price	1. View transparency covering the equation used to determine selling price when given the rate of markup desired on the selling price. (Appendix A, 8.2) 2. Read pages in workbook on topic. 3. Complete exercises chosen by the teacher.

8.3. Given six exercises, the student will be able to determine the markup rate based on selling price with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining markup rate	1. View transparency covering the rate of markup. (Appendix A, 8.3) 2. Complete exercises assigned by teacher.

8.4. Given six exercises, the student will be able to determine selling price to give the rate of markup desired on cost with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining selling price based on cost	1. View transparency covering how to figure the selling price based on cost. (Appendix A, 8.4) 2. Read pages in workbook. 3. Complete exercises chosen by the teacher.

8.5. Given six exercises, the student will be able to determine the rate of markup based on the cost with 80 percent accuracy.

Subject Matter Content	Learning Activities
Determining rate of markup on cost	1. View transparency covering the rate of markup. (Appendix A, 8.5) 2. Read pages assigned in textbook. 3. Work exercises chosen by the teacher.

8.6. The student will be able to read the chart covering the converting of markup from one base to the other base and complete applied business application problems with 80 percent accuracy.

Subject Matter Content	Learning Activities
Conversion Chart Converting from one markup percent on cost to markup percent on selling price.	1. View presentation of the conversion chart as given by the teacher (chart is found in most business math textbooks). 2. Using the conversion chart provided by the teacher, orally answer questions directed by the teacher on reading of the conversion. 3. Work exercises in workbook.

8.7. The student will be able to discuss pricing codes and interpret them with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Interpreting pricing codes	1. View presentation given by a person from a local retailing store on the various pricing codes used in the retailing business. 2. View examples worked out by the teacher. 3. Complete exercises as assigned by the teacher. 4. Complete Section IV Test. (Appendix B)

9.1. The student will be able to identify terminology relating to profit and loss with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: gross profit net profit net loss overhead expenses	1. Complete a handout of terms and definitions as required by the teacher. 2. Read pages assigned in the textbook. 3. Answer questions directed by the teacher concerning the students' ideas on why businesses have to make a profit. 4. View guest speaker's presentation on the retailer and the many factors that help determine whether a profit or a loss is made.

9.2. The student will be able to state the formula for net profit and net loss with 100 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Formulas for figuring net profit and net loss	1. View presentation from teacher covering the formulas used for figuring net profit and net loss. 2. Record notes as the teacher discusses the formulas for net profit and net loss.

9.3. Given ten exercises, the student will be able to determine if there was a net profit or a net loss and the amount of this profit or loss. This activity should be completed with 90 percent accuracy.

Subject Matter Content	Learning Activities
Calculating net profit or net loss	1. View examples worked on the board by the teacher. 2. Record notes as the teacher explains the methods used

to calculate net profit or net loss.

3. Read pages assigned in the textbook.

10.1. The student will be able to identify terminology relating to sales records with 90 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: cash register cash short cash over change fund proving cash	1. Read and discuss various definitions related to sales records. 2. Read pages assigned in the textbook.

10.2. Given five exercises, the student will be able to complete cash proof forms with 90 percent accuracy.

Subject Matter Content	Learning Activities
Completion of cash proof forms.	1. View work on chalkboard as the teacher completes a cash proof form. 2. Complete exercises as chosen by the teacher using cash proof forms. (Appendix A, 10.2) 3. Have students survey a business person about the method used to prove cash. 4. Complete Section V Test. (Appendix B)

APPENDIX A

TRANSPARENCY FOR 2.1

TRANSPARENCY OF A PURCHASE ORDER AND A PURCHASE INVOICE

STEVENS' SPORTING GOODS
420 Spark Road
Hammond, LA 70403

SOLD TO____________________________

INVOICE NO.__________________

DATE__________________

TERMS____________________________

SHIPPED VIA__________________

QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

APPENDIX A

LEARNING ACTIVITY FOR 3.1

WORD SEARCH PUZZLE

DIRECTIONS: Find the following words in the puzzle below:

1. Consumer
2. Duedate
3. Extension
4. Producer
5. Retailer
6. Vendor
7. Wholesaler

R	E	T	A	I	L	E	R	C	C
E	X	T	E	N	S	I	O	N	O
Q	A	K	T	U	J	W	I	Y	N
U	D	E	B	V	M	S	X	B	S
I	D	U	V	D	C	N	O	T	U
S	K	E	V	E	N	D	O	R	M
I	L	J	F	G	H	Z	A	S	E
T	N	Z	Y	R	P	Q	C	E	R
I	A	V	G	B	H	I	N	R	P
O	W	X	O	K	L	J	Q	F	O
N	L	F	I	I	R	M	S	G	M
P	R	O	D	U	C	E	R	Q	N
D	U	E	D	A	T	E	P	H	O
W	H	O	L	E	S	A	L	E	R

APPENDIX A

LEARNING ACTIVITY FOR 3.1

WORD SEARCH PUZZLE

KEY

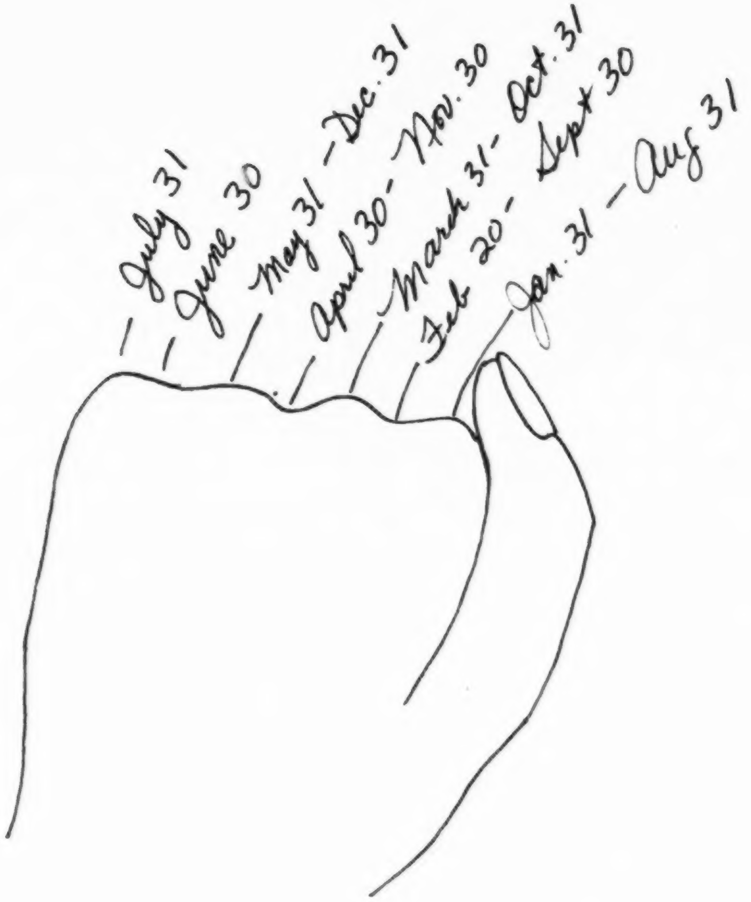
R	E	T	A	I	L	E	R	C	C
E	X	T	E	N	S	I	O	N	O
Q	A	K	T	U	J	W	I	Y	N
U	D	E	B	V	M	S	X	B	S
I	D	U	V	D	C	N	O	T	U
S	K	E	V	E	N	D	O	R	M
I	L	J	F	G	H	Z	A	S	E
T	N	Z	Y	R	P	Q	C	E	R
I	A	V	G	B	H	I	N	R	P
O	W	X	O	K	L	J	Q	F	O
N	L	F	I	I	R	M	S	G	M
P	R	O	D	U	C	E	R	Q	N
D	U	E	D	A	T	E	P	H	O
W	H	O	L	E	S	A	L	E	R

APPENDIX A

TRANSPARENCY FOR 3.5

KNUCKLE METHOD

Months on top of knuckles have 31 days and months between knuckles have 30 days except February, which has 28 days.


July 31
June 30
May 31 - Dec. 31
April 30 - Nov. 30
March 31 - Oct. 31
Feb 20 - Sept 30
Jan. 31 - Aug 31

APPENDIX A

TRANSPARENCY FOR 4.2

INTERPRETING TERMS OF SALE

Terms of sale tell the time within which purchasers may pay to receive a discount and also tell the time within which they must pay to avoid a penalty.

Example 1: 2/10, n/30 means that purchasers will receive a (2) 2% discount if they pay within (10) 10 days, and they must pay the (n) net amount within (30) 30 days.

Example 2: 3/10, 2/20, n/30 means purchasers will receive a (3) 3% discount if they pay within (10) 10 days, a (2) 2% discount if they pay within (20) 20 days, and they must pay the (n) net amount within (30) 30 days.

Example 3: 3/10, EOM means purchasers will receive a (3) 3% discount if they pay within (10) 10 days from the end of the month in which they purchased the goods. For example, if the goods were bought on May 15, the purchaser has until June the 10th to pay the invoice and receive the 3% discount. EOM stands for end of month.

Interpret the following terms:

2/10, n/60

3/15, 2/20, n/30

3/15 EOM

APPENDIX A

TRANSPARENCY FOR 8.2

COMPUTING SELLING PRICE TO GIVE DESIRED RATE OF MARKUP ON SELLING PRICE

When the rate of markup desired is based on the selling price, the selling price is 100%.

Example: A retailer buys typewriters for $300 and must have a markup that is 40% of the selling price to cover overhead expenses and get the desired income. What is the lowest price the typewriters can be sold for and still make the rate of markup desired?

Selling Price - 40% of Selling Price = Cost

Step 1: Subtract markup desired from 100%.

100% - 40% = 60%

Step 2: Divide cost price by rate determined in Step 1.

$300 divided by 60% = $500

Conclusion: The lowest price the typewriters can sell for is $500 and still make the rate of markup desired.

Check: Selling Price - 40% of selling price = Cost.

$500 - $200 (40% of selling price) = $300 (Cost)

APPENDIX A

TRANSPARENCY FOR 8.3

COMPUTING MARKUP RATE BASED ON SELLING PRICE

Formula to be used: Rate of markup = Markup/Selling Price

Example: A shirt selling for $15.00 that cost $12.00 is marked up at what rate on the selling price?

Step 1: Determine amount of markup.

Selling price--$15.00

Minus Cost--$12.00

Markup--$ 3.00

Step 2: Place figures in formula.

Rate of Markup = Markup/Selling Price

Rate of Markup = $3.00/$15.00

Rate of Markup = 20%

APPENDIX A

TRANSPARENCY FOR 8.4

COMPUTING SELLING PRICE TO YIELD RATE OF MARKUP DESIRED ON COST

Step 1: Find the amount of markup by using the formula

Rate x Cost = Markup.

Step 2: Add markup from Step 1 to cost to get selling price.

Example: An antique dealer bought a lamp for $90. The markup must be 60% of the cost to cover overhead and give income desired.

Step 1: Rate x Cost = Markup

60% x $90 = Markup

.60 x $90 = Markup

$54 = Markup

Step 2: Add markup to cost to get selling price.

(Markup) $54 + (Cost) $90 = (Selling Price) $144

Conclusion: The lamp must be sold for $144 in order to get the desired rate of markup.

APPENDIX A

TRANSPARENCY FOR 8.5

DETERMINING RATE OF MARKUP ALLOWED BASED ON COST

Step 1: Find the amount of markup.

Step 2: Divide the markup by the cost of the item.

Example: A dress costing \$63 sold for \$105. What was the rate of markup based on the cost?

Step 1: Selling Price - Cost = Markup

\$105 - \$63 = \$42

Step2: Markup divided by cost

\$42/\$63 = 66.6%

APPENDIX A

LEARNING ACTIVITY FOR 10.2

CASH PROOF FORM

CHANGE FUND ____________

Register total of cash received ____________

Total ____________

Register total of cash paid out ____________

Cash that should be in drawer ____________

Cash actually in drawer ____________

Cash short ____________

Cash over ____________

CASH PROOF FORM

CHANGE FUND ____________

Register total of cash received ____________

Total ____________

Register total of cash paid out ____________

Cash that should be in drawer ____________

Cash actually in drawer ____________

Cash short ____________

Cash over ____________

APPENDIX B

UNIT VIII

PRETEST

1. An invoice with terms of 2/10, n/30 is dated November 28. By what date must the invoice be paid to take the 2% discount?

2. Figure the cash discount in question #1 if the invoice is paid in time to take the discount and the total of the invoice before the discount was $650.90.

3. What single discount is equal to the series 25%, 20%, 20%?

4. Does the consumer purchase merchandise from the wholesaler or the retailer?

5. A refrigerator with a list price of $500 is billed to a retailer at $490. What percent of discount is given on the refrigerator?

6. A firm in Atlanta offers you merchandise for $500, less 10% and 20%, F.O.B. your city. A firm in Smyrna offers similar merchandise at $450, less 15% and 20%, F.O.B. Smyrna. The freight charges from Smyrna to your city are $48. How much do you save by taking the better offer?

7. During a sale, a shirt originally priced at $19.50 is sold for $13.65. What rate of discount is allowed on the original price?

8. What is the most that a store should pay for an item that sells for $25.75 if the markup is to be 36% of the selling price?

9. The Stretch Shop pays $250 for a sewing machine and sells it for $400. What is the shop's estimated net income on the machine if their operating expenses average 20% of the net sales?

10. Mary Orge had $100 in change in her cash register at the start of the day on May 1. At the end of the work day, there was $488.69 in the cash register. The register totals showed that she had taken in $407.43 and paid out $28.75 during the day. How much was the cash short or over?

APPENDIX B

UNIT VIII

PRETEST ANSWER KEY

1. December 8
2. $13.02
3. 52%
4. Retailer
5. 2%
6. $6
7. 30%
8. $16.48
9. $70
10. $10.01 Over

APPENDIX B

UNIT VIII

SECTION I TEST

1. Terminology--Directions: Match the term on the right with the statement on the left that means the same.

_____ 1. Person who buys goods at the retail outlet.

_____ 2. Quantity times unit price.

_____ 3. Person who makes the goods to sell to the wholesaler.

_____ 4. The date on which an invoice must be paid.

_____ 5. Person who sells directly to the consumer.

_____ 6. States the time within which the purchaser must pay the total amount to avoid a penalty.

_____ 7. Person who buys merchandise to sell to the retailer.

_____ 8. Total cost of all goods bought.

_____ 9. Order sent by the buyer telling the seller the goods he would like to buy.

_____10. Form filled out by a clerk when goods are delivered. It tells the condition of the goods and if any goods were damaged or missing.

_____11. A bill sent by the supplier after the goods have been shipped.

_____12. A description of the goods without any prices.

_____13. A form sent by the purchasing department when supplies are needed.

_____14. The supplier or seller of goods.

A. Purchases

B. Terms of Sale

C. Vendor

D. Producer

E. Extensions

F. Purchase Order

G. Consumer

H. Due Date

I. Purchase Requisition

J. Bill of Lading

K. Wholesaler

L. Retailer

M. Receiving Record

N. Purchase Invoice

II. Problem Solving

1. In your own words, state the chain of purchasing that begins with the producer.

2. Explain the difference between a retailer being granted a discount and giving a discount. Be sure to include the titles of the people involved in both cases. (i.e., the consumer)

3. Explain the differences that exist between a purchase order and a purchase invoice.

4. Using the invoice provided by the teacher, label the following parts of an invoice:

   terms of sale
   extensions

5. On the same invoice of question in #4, what is the date that this invoice must be paid by in order to receive the discount?

6. Again, on this same invoice, check the extensions and use the method taught to you in class to indicate that you have checked the extensions. Make any necessary changes directly on the invoice.

7. Complete the chart below indicating the date the invoice should be paid by in order to receive the best discount:

Date of Invoice	Terms	Date to be paid to Receive Best Discount
Oct. 28	2/10,n/30	
Jan. 18	3/10,n/30	
Aug. 3	2/20 EOM	
Feb. 15	5/10,2/30,n/60	
June 12	2/10,1/30,n/60	

8. Complete the chart below indicating the net purchases, total purchases, total purchase returns and total net purchases:

Items	Purchases	Purchase Returns	Net Purchases
Baseball Wear	$4,800	$500	$
Exercise Wear	$6,550	$395	$
Football Wear	$2,500	$550	$
TOTALS			

APPENDIX B

UNIT VIII

SECTION II TEST

I. Terminology--Directions: Give a short but complete definition of the terms listed below:

1. Cash Discount

2. Cash Price

3. Discount Period

4. EOM

II. Interpreting Terms of Sale--Directions: For each of the terms of sale that can be found on a purchase invoice, explain exactly what they mean to the buyer.

1. 2/10, n/30 means

2. 5/10, 3/20, n/60 means

3. 3/10 EOM means

III. Calculating Cash Discounts & Cash Prices--Directions: For each invoice total listed below with the terms of sale, determine two things: 1) Amount of discount if any and 2) Cash price to be paid.

TERMS	INVOICE TOTAL	DATE OF INVOICE	DATE PAID	DISC.	CASH PRICE
1. 2/10,n/30	$ 650	Feb. 5	Feb. 13	A.	B.
2. 2/10,n/30	$ 980	Jan. 30	Feb. 11	A.	B.
3. 3/10,2/20,n/60	$1050	April 15	April 24	A.	B.
4. 3/10,2/20,n/60	$1800	May 20	June 1	A.	B.
5. 2/10,n/30	$ 790	March 1	March 20	A.	B.
6. 3/10 EOM	$ 895	May 20	June 8	A.	B.
7. 3/10 EOM	$1590	Aug. 10	Sept. 12	A.	B.
8. 2/10,1/20,n/30	$2050	Nov. 10	Nov. 24	A.	B.

IV. Borrowing to Take Cash Discount--Directions: Determine in each problem below the amount saved by borrowing to take the cash discount.

1. Jane Thomas borrowed $820 for 60 days at 10% to pay cash and get a cash discount of $18 on an invoice. What amount did she save by borrowing to take the discount?

2. Jose can get a $70 cash discount by borrowing $3000 at 6% interest for 20 days. What amount will he save by borrowing the money and taking the discount?

3. A retailer bought some goods for $5000 on terms of 3/10, n/60. To get the cash discount, the dealer borrowed the money for 60 days at 10%. How much money did the dealer save by borrowing?

V. Finding the Rate of Cash Discount--Directions: Find the missing item in each problem.

	INVOICE PRICE	CASH PRICE	CASH DISCOUNT	RATE OF DISCOUNT
1.	$300	$291	A.	B.
2.	$350	$345	A.	B.
3.	$525	$508	A.	B.

APPENDIX B

UNIT VIII

SECTION III TEST

I. Terminology--Directions: Match the term on the right with the statement on the left that means the same.

_____ 1. Two or more trade discounts

_____ 2. Difference between a discount rate and 100%

_____ 3. Trade discount based on amount purchased

_____ 4. Discount from list price given to retailers

_____ 5. Time in which discount is allowed

_____ 6. Catalog Price

_____ 7. List price less trade discount; net price

A. Series of Discounts

B. Invoice Price

C. List Price

D. Complement

E. Discount Period

F. Trade Discount

G. Quantity Discount

II. Trade Discounts

1. What is one reason trade discounts are offered?

2. For each item listed below, determine the trade discount and the invoice price:

ITEM	LIST PRICE	RATE OF DISCOUNT	TRADE DISCOUNT	INVOICE PRICE
A	$46	35%	1.	2.
B	$495	20%	1.	2.
C	$125	30%	1.	2.
D	$95	45%	1.	2.
E	$50	25%	1.	2.

III. Rate of Trade Discount--Directions: Find the amount and rate of trade discount for each problem below:

ITEM	LIST PRICE	INVOICE PRICE	TRADE DISCOUNT	RATE OF DISCOUNT
A	$150	$ 90	1.	2.
B	$300	$225	1.	2.
C	$650	$455	1.	2.

IV. Series of Discounts--Directions: Determine the trade discount when a series of discounts are offered.

1. The Skyway Wholesalers offers stereos at $750 less 20% and 15%. What is the invoice price?
2. The ABC Hardware Store offers lawnmowers at $495, less 30%, 25%, and 10%. What is the invoice price?
3. The Marvin Company offers goods delivered at $1500 less 20%, 15%, and 5%. Sherman Company offers the same goods at $1800 less 30%, 20%, and 10%. How much is saved by taking the best offer?

V. Complements

1. What are the two steps to find the single discount equivalent?
2. Find the single discount equivalent to the discount series for each of these discount plans:

   A. 25%, 15%

   B. 20%, 10%

   C. 20%, 20%, 5%

VI. Trade and Cash Discounts Offered Together

1. When both a trade and a cash discount are offered on the same item, in which order are they taken?
2. Determine the cash price for each problem below if they are paid within the discount period:

LIST PRICE	TRADE DISCOUNT	TERMS	CASH PRICE
a. $800	20%, 15%	2/10,n/30	A.
b. $1500	30%, 25%	3/10, n/60	B.
c. $590	25%, 20%	5/10, n/60	C.

APPENDIX B

UNIT VIII

SECTION IV TEST

I. Terminology--Directions: Match the term on the right with the statement on the left that means the same.

_____ 1. Free on board

_____ 2. Selling price minus cost; gross profit

_____ 3. Costs of buying and getting goods delivered to you

_____ 4. Invoice or cash price plus buying expenses

_____ 5. Deciding what price to place on goods for sale .

A. Pricing Goods

B. F.O.B.

C. Total Cost

D. Markup

E. Buying Expenses

II. Transportation in Charges on Purchases--Directions: In the problems below, indicate which company will be paying the shipping charges and the total cost of the goods.

1. Sharp Motors, Inc., in Newport offers goods to a dealer in Shreveport at a price of $395, f.o.b. Newport. The transportation charges are $28.50.

   a. Who pays the shipping charge?

   b. What is the total cost of the goods to the dealer in Shreveport?

2. Newhart Company in New York offers goods to a dealer in Georgia for $1450, f.o.b. Georgia. The transportation charges are $49.00.

   a. Who pays the shipping charge?

   b. What is the total cost of the goods to the dealer in Georgia?

III. Figuring Selling Price Given Rate of Markup on Selling Price--Directions: Find the retailer's selling price based on the chart on the following page.

RETAILER'S COST	RATE OF MARKUP DESIRED	RETAIL SELLING PRICE
1. $39.00	35%	1.
2. $40.60	42%	2.
3. $64.80	28%	3.

IV. Markup Rate--Directions: Find the rate of markup on selling price for each problem below:

RETAIL COST	RETAIL SELLING PRICE	RATE OF MARKUP
1. $310.20	$564.00	1.
2. $300.00	$500.00	2.
3. $105.30	$162.00	3.

V. Calculating Selling Price--Directions: Figure selling price when percent (%) markup on selling price is known.

1. The owner of City Slickers, Inc., has to buy suits for the line that sells for $250.00. What is the most that can be paid for this line if the markup must be 27% of the selling price?

2. A store has a line of shirts that retail for $32.50. What is the highest price they can pay for the shirts and make a 42% markup of the selling price?

3. An outlet has a 38% markup on the selling price on hats that sell for $22.70. What is the cost of the hats to the store?

VI. Pricing Codes--Directions: Write each price below in code using the code word shown.

CODE WORD: I LOVE MY BAT

REPEATER: C

PRICES: 1. $22.50 = __________

2. $49.85 = __________

3. $28.77 = __________

4. $36.41 = __________

APPENDIX B

PART II

SECTION [illegible]

I. Terminology--Directions: Match the terms on the right with the statement on the left that means the same.

_____ 1. Counting cash on hand and checking its accuracy with records of cash received and paid out.

_____ 2. A device for storing cash

_____ 3. Money placed in a cash drawer at the start of a period.

_____ 4. The cost of items such as transportation charges, rent, and salaries.

_____ 5. The amount left after subtracting operating expenses from gross profit.

_____ 6. When operating expenses are greater than gross profits.

_____ 7. A reduction in marked or retail price.

_____ 8. When there is less cash on hand than there should be

_____ 9. Net sales less cost of merchandise sold.

_____10. When there is more cash on hand than there should be.

A. Cash Register

B. Overhead Expenses

C. Cash Over

D. Markdown

E. Cash Short

F. Net Profit

G. Change Fund

H. Net Loss

I. Gross Profit

J. Proving Cash

II. Finding Profit or Losses on Sales--Directions: Determine the profit or loss for each problem below.

1. Sateway, Inc., bought goods costing $5,500 and sold them for $7,500. Operating expenses for this purchase and sale were estimated to be $2,080. What was the net profit or net loss on this purchase and sale?

2. The Best Dress Shop bought 150 blouses for $1,500 and paid $80 for shipping charges. The shop sold 50 blouses at $25.00 each, 40 at $18.00 each, and the rest at $15.00 each. What was the store's gross profit on the lot of 150 blouses?

3. The Boutique bought 100 suits for $7,500 and paid $250 to have them shipped to their shop. During the season, the shop sold 75 suits at $150 and the rest for $120 at an end of season sale. How much was the gross profit on the lot of suits?

III. Cash Proof Forms--Directions: Complete the cash proof forms for the three problems given below:

1. At the start of the day, Henry put $500 in change in the drawer of the cash register. The cash register readings at the end of the day showed total cash received, $5427.80 and total cash paid out, $158.00. The cash in the drawer at the end of the day was $5765.80.

2. At the start of the day, Mary put $750 in change in the drawer of the cash register. The cash register readings at the end of the day showed total cash received, $24,200.05 and total cash paid out, $1852.50. The cash in the drawer at the end of the day was $23,100.50.

3. At the start of the day, Sharon put $1000 in change in the drawer of the cash register. The cash register readings at the end of the day showed total cash received, $3074.30 and total cash paid out, $187.50. The cash in the drawer at the end of the day was $3886.80.

APPENDIX B

UNIT VIII

SECTION I ANSWER KEY

I.
1. G
2. E
3. D
4. H
5. L
6. B
7. K
8. A
9. F
10. M
11. N
12. J
13. I
14. C

II.
1. Various answers are acceptable.
2. Various answers are acceptable.
3. Purchase order is an order from the buyer saying what he wants to buy. Purchase invoice is an itemized statement showing goods bought with prices.
4. Answers vary depending on invoice chosen by teacher.
5. Same as 4.
6. Same as 4.
7. Nov. 7
   Jan. 28
   Sept. 20
   Feb. 25
   June 22
8. 4,300 Total Purchases = 13,850
   6,155 Total Returns = 1,445
   1,950 Total Net Purchases = 12,405

SECTION II ANSWER KEY

I.
1. Cash discount is a discount given for early payment.
2. Cash price is an invoice price less cash discount.
3. Discount period is the number of days given for a cash discount.
4. EOM is a term showing that a trade discount will be given within a certain number of days after the end of the month on the invoice.

II.
1. 2/10, n/30 means a 2% discount if the invoice is paid within 10 days or the net amount must be paid within 30 days.

2. 5/10, 3/20, n/60 means a 5% discount if the invoice is paid within 10 days, a 3% discount if paid from the 11th to the 20th date on the invoice, or the net amount must be paid within 10 days from the end of the month on the invoice.

3. 3/10 EMO means a 3% discount if the invoice is paid within 10 days from the end of the month on the invoice.

III.	1.	13.00	637.00
	2.	0	980.00
	3.	31.50	1018.50
	4.	36.00	1764.00
	5.	0	790.00
	6.	26.85	868.15
	7.	0	1590.00
	8.	20.50	2029.50

IV. 1. 4.33
2. 60.00
3. 69.17

V. 1. 9.00
3%
2. 5.00
1.4%
3. 17.00
3.2%

APPENDIX B

UNIT VIII

SECTION III ANSWER KEY

I. 1. A
2. D
3. G
4. F
5. E
6. C
7. B

II. 1. To encourage retailers to buy from certain wholesalers.

II.	2.	A.	16.10	29.90
		B.	99.00	396.00
		C.	37.50	87.50
		D.	42.75	52.25
		E.	12.50	37.50

III.	1.	$60	40%
	2.	$75	25%
	3.	$195	30%

IV. 1. $510
2. $233.88
3. $61.80

V. 1. Find invoice price in % and subtract invoice price in % from the list price, 100%.

2. A. 36.25%
B. 28%
C. 39.2%

VI. 1. Trade discount first.
2. A. 533.12
B. 763.87
C. 336.30

SECTION IV ANSWER KEY

1. 1. B
2. D
3. E
4. C
5. A

II. 1. a. Shreveport
b. $423.50
2. a. New York
b. $1450

III. 1. $60
2. $70
3. $90

IV. 1. 45%
2. 40%
3. 35%

V. 1. $182.50
2. $18.85
3. $14.07

VI. 1. LCET
2. VABE
3. LBYC
4. OMVI

SECTION V ANSWER KEY

I. 1. J
2. A
3. G
4. B
5. F
6. H
7. D
8. E
9. I
10. C

II. 1. $ 80 Loss
2. $1290 Profit
3. $6500 Profit

III. 1. $4.00 Short
2. $2.95 Over
3. $EVEN

APPENDIX C

EVALUATION AND TESTING

Ways to Evaluate Pupil Growth:

1. Class participation

2. Homework

3. Quizzes

4. Unit Test

5. Word Search

EQUIPMENT AND SUPPLIES

Student:

1. Textbook/Workbook
2. Notebook

Teacher:

1. Textbook and Manual
2. Overhead Projector
3. Transparencies
4. Bulletin Board Supplies
5. Sample Problems
6. Worksheets
7. Business Forms
8. Handouts
9. Calculator

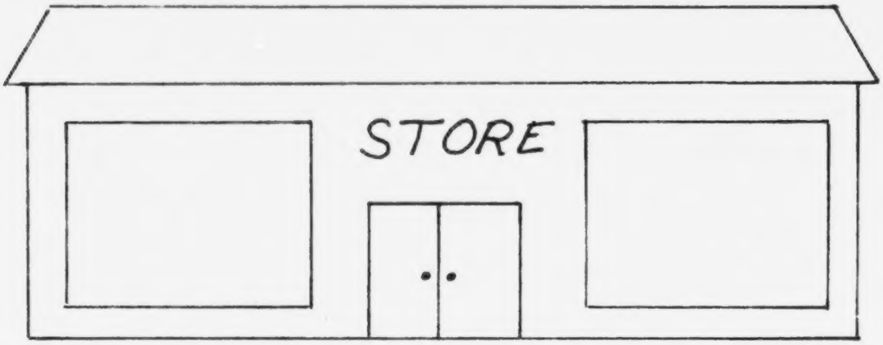
APPENDIX D

BULLETIN BOARD IDEA

FOR 1.2A

TITLE: RETAILERS BUY FROM WHOLESALERS WHO BUY FROM PRODUCERS.

THEY MUST MAKE MANY PURCHASING DECISIONS!



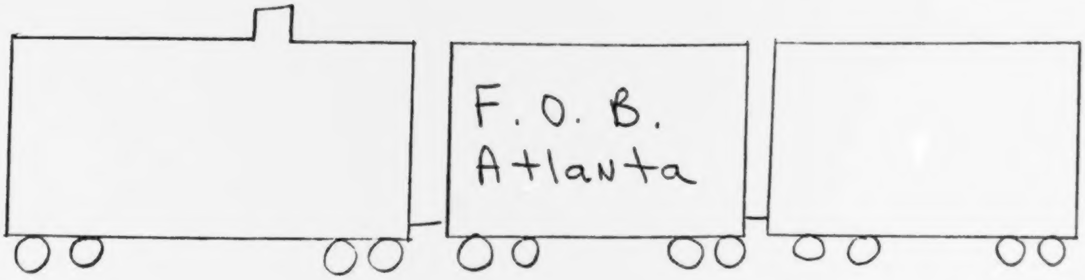
DIRECTIONS: Use a picture of a store front of a retail business. Below the picture have the following questions listed.

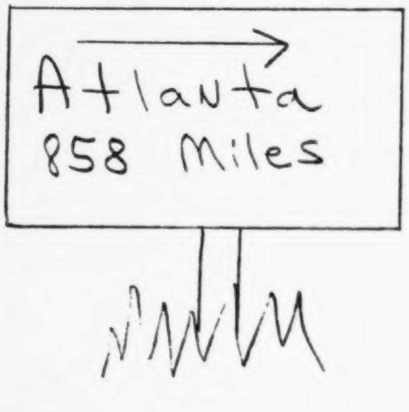
1. WHO TO BUY FROM?
2. WHAT IS THE BEST OFFER?
3. HOW MUCH TO BUY?
4. WHEN TO PAY?
5. HOW TO ORDER?

APPENDIX D

BULLETIN BOARD IDEA

FOR 7.2A


F. O. B.
Atlanta


Atlanta
858 Miles

THE COMPANY IN ATLANTA DOES NOT PAY THE SHIPPING CHARGE, THE OTHER COMPANY WILL PAY THEM!

APPENDIX E

SUPPLEMENTARY MATERIALS

Books

Dillon, William M. (1985). Business Mathematics. Albany, New York: Delmar Publishers, Inc.

Fairbank, Roswell E., Robert A. Schultheis, and Raymond M. Kaczmrski. (1985). Applied Business Mathematics. Cincinnati, Ohio: South-Western Publishing Company.

Reed, James H. and Walter E. Williams. (1984). Essentials of Business Mathematics. Dubuque, Iowa: William C. Brown Publishers.

Video Cassettes

"Office Machines--Markup Based on Cost and on Selling Price" from the Office Machines--Calculations Series,
"Office Machine--Percent of Markup Based on Cost or on Selling Price" from the Offfice Machines--Calculations Series,
(1/2 inch video cassette BETA/VHS, 13 minutes)
RMI Media Productions, 2807 West 47th Street, Shawnee Mission, KS 66205

"Prices" from the Common Cents - A Series,
"Producers and Consumers" from the Common Cents - A Series,
(3/4 or 1/2 inch video cassette, 15 minutes)
Agency for Instructional Technology, Box A, Bloomington, IN 47402

UNIT IX

INVENTORY AND DEPRECIATION

INTRODUCTION

For a business to have a realistic view of its net worth, an accurate and up-to-date inventory and depreciation of long-term and fixed assets are necessary. A physical inventory is prepared by people in many occupations. Upon successful completion of this unit, the student will have a basic understanding of inventory and depreciation methods. Also, a knowledge of inventory and depreciation will help the student understand insurance valuation and the need for accurate personal inventory.

COMPETENCIES

1. Define inventory.
2. Determine the value of inventory using FIFO, LIFO, average cost, retail inventory estimating, or specific identification.
3. Compare the LIFO and FIFO method of inventory.
4. Discuss the advantages and disadvantages of each inventory method.
5. Define depreciation and depletion.
6. Find book value, accumulated depreciation, and depreciation using one of several depreciation methods.
7. Figure depreciation for a partial year.
8. Explain the ACRS method, law and effects of the Economic Recovery Tax Act of 1981.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Use basic math skills to find the value of the ending inventory using the LIFO, FIFO, average cost, specific identification or retail estimation method.
2. Apply correct formulas to figure yearly depreciation using the straight-line method, units-of-production, sum-of-the-years digit, declining balance, ACRS and depletion methods.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. As an outside class assignment, the student will be able to take a physical inventory.

1.2. In class, the student will be able to work FIFO inventory problems.

1.3. In class, the student will be able to work LIFO inventory problems.

1.4. As a quiz, the student will be able to find inventory using the LIFO and FIFO methods and list an advantage of each system, with 75 percent accuracy.

1.5. The student will be able to complete four homework problems using the average cost method.

1.6. As an assignment, the student will complete a handout of terms and definitions.

1.7. The student will be able to complete a problem using the retail inventory estimating method with 70 percent accuracy.

1.8. The student will be able to give examples of businesses using the specific identification inventory method as well as explain how to use this method with 70 percent accuracy on a short quiz.

1.9. The student will be able to complete inventory problems using the LIFO, the FIFO, the average cost, the retail inventory estimating method and the specific identification with 75 percent accuracy on the unit test.

2.1. Using newspapers and other resources for background information, the student will be able to define depreciation and identify some government regulations about depreciation during a class discussion.

2.2. The student will be able to match depreciation terms on a quiz with 70 percent accuracy.

2.3. On the unit test, the student will be able to work a straight line depreciation problem with 70 percent accuracy.

2.4. In class the student will be able to explain the-units-of-production depreciation method and to identify the type of companies which use this depreciation method.

2.5. On the unit test, the student will be able to figure sum-of-the-years digit and be able to work sum-of-the-years digit method problems with 80 percent accuracy.

2.6. The student will be able to work declining balance problems on the unit test with 70 percent accuracy.

2.7. The student will be able to work four partial depreciation problems with 70 percent accuracy.

2.8. The student will be able to work ACRS problems on the unit test with 70 percent accuracy.

2.9. In class the student will be able to work depletion problems.

METHODOLOGY

This unit applies basic math skills in the areas of inventory and depreciation. The students are introduced to methods used in inventory control and depreciation of fixed and long term assets.

Books, pamphlets, and visual aids listed in the supplementary materials will be used in this unit. A pretest and a unit test can be found in Appendix B. The unit test is presented in sections and can be given as either one test or as section tests.

The suggested grading competencies listed in the specific objectives can be changed to fit the local school standards or student ability.

The many new tax regulations have affected inventory and depreciation methods. It is suggested the instructor keep up-to-date in this area by reading material or having guest speakers.

SUGGESTED INTEREST APPROACHES

1. Show where math skills learned in earlier units are being applied to the unit presented now.
2. Use practical examples the students are familiar with and interested in.
3. Use supplementary problems as deemed necessary.
4. Administer short quizzes to reinforce learning of inventory and depreciation terms.
5. Have the student take some type of physical inventory, such as classroom, purse, etc.

UNIT IX OUTLINE

INVENTORY AND DEPRECIATION

I. Inventory Methods

  A. Physical Inventory
  B. First-In, First-Out (FIFO)
  C. Last-In, First-Out (LIFO)
  D. Comparison of FIFO and LIFO
    1. Advantages
    2. Disadvantages
  E. Average Cost Inventory
  F. Retail Inventory Estimating Method (REIM)
    1. Terminology
    2. Explanation
  G. Specific Identification
  H. Comparison of Inventory Methods

II. Depreciation

  A. Meaning of Depreciation
    1. Business need
    2. Government regulations
  B. Terminology
  C. Straight-Line Method
  D. Units-of-Production Method
  E. Sum-of-the-Years Digit Method
  F. Declining Balance Method
  G. Partial Year Depreciation
  H. Accelerated Cost Recovery System (ACRS)
    1. Economic Recovery Tax Act of 1981
    2. ACRS method
  I. Depletion

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. As an outside class assignment, the student will be able to take a physical inventory.

Subject Matter Content	Learning Activities
Physical Inventory	1. View teacher's presentation on the importance of taking accurate inventory.
	2. Find the term in the textbook and complete samples of simple inventory problems.

3. As an outside assignment, take a physical inventory of the furnishings of a bedroom or some other part of a house or apartment.

1.2. In the class, the student will be able to work FIFO inventory problems.

Subject Matter Content	Learning Activities
Inventory FIFO Method First-in, First-out method	1. View teacher's presentation of the FIFO method. 2. Read the text pages that refer to FIFO. 3. Work problems as assigned by the instructor.

1.3. In class, the student will be able to work LIFO inventory problems.

Subject Matter Content	Learning Activities
LIFO Inventory Method Last-In, First-Out	1. View teacher's presentation of the LIFO method. 2. Read the assigned text pages. 3. Complete problems as assigned by the instructor.

1.4. As a quiz, the student will be able to find inventory using the LIFO and FIFO methods and list an advantage of each system with 75 percent accuracy.

Subject Matter Content	Learning Activities
Comparison of LIFO and FIFO method Advantages and Disadvantges of each system.	1. Review the LIFO and FIFO methods as presented by teacher. (Appendix A 1.4) 2. View bulletin board. (Appendix B) 3. Participate in discussion about the advantages and disadvantages of each system.

4. Work problems using both FIFO and LIFO.

5. Take problem quiz on LIFO and FIFO methods.

1.5. The student will be able to complete four homework problems using the average cost method.

Subject Matter Content	Learning Activities
Define average cost Method for finding average cost per unit. Inventory value	1. View teacher's presentation of the term, average cost, and the average cost method of inventory. (Appendix A, 1.5) 2. List four types of businesses that use average cost inventory methods. 3. Complete four homework problems as provided by teacher.

1.6. As an assignment, the student will complete a handout of terms and definitions.

Subject Matter Content	Learning Activities
Terminology Merchandise available for sale Net Sales Purchases Ratio of merchandise available for sale	1. Find definition of terms in text and complete handout of terms.

1.7. The student will be able to complete a problem using the retail inventory estimating method with 70 percent accuracy.

Subject Matter Content	Learning Activities
Retail Inventory Estimating method (RIEM)	1. View teacher's presentation of RIEM. (Appendix A, 1.7)

	2. Work sample problems of retail inventory estimating method from workbook.
	3. Complete assignment sheet as given by instructor.

1.8. The student will be able to give examples of businesses using specific identification inventory method as well as explain how to use this method with 70 percent accuracy on a short quiz.

Subject Matter Content	Learning Activities
Define turnover	1. Look up the term, turnover, in text.
Specific Identification Used by companies with low inventory or turnover	2. View presentation on specific identification.
Computers scanner as found in supermarkets. This is a form of perpetual inventory	3. Discuss examples of companies using computers in inventory.
	4. Complete assignment sheet as given by instructor.
	5. Take quiz as given by instructor.

1.9. The student will be able to complete inventory problems using the LIFO, FIFO, average retail inventory estimating method and specific identification with 75 percent accuracy on the unit test.

Subject Matter Content	Learning Activities
Review Inventory Methods	1. Discuss which types of businesses might use these kinds of inventory methods.
	2. Participate in review of methods by working sample problems and viewing teacher presentation.
	3. Take section test covering objectives 1.1 through 1.9.

2.1. Using newspapers and other resources for background information, the student will be able to define depreciation and identify some government regulations about depreciation during a class discussion.

Subject Content Matter	Learning Activities
What is depreciation Why depreciation for business New government regulations	1. Read text about depreciation. 2. Participate in discussion about depreciation. 3. Answer oral questions about depreciation. 4. Look up tax regulations in tax guide. 5. Ask a bookkeeper or accounting firm about new tax regulations.

2.2. The student will be able to match depreciation terms on a quiz with 70 percent accuracy.

Subject Matter Content	Learning Activities
Terminology: Original cost Estimated life Resale value Trade-in value Scrap value Book Value Accumulated depreciation	1. Look up words in text and record in notebook. 2. Participate in oral questions of terms. 3. Take quiz.

2.3. On the unit test, the student will be able to work a straight line depreciation problem with 70 percent accuracy.

Subject Matter Content	Learning Activities
Straight-line depreciation Depreciation schedule	1. View teacher's presentation on straight-line depreciation and depreciation schedule. (Appendix A, 2.3)

2.4. In class the student will be able to explain the units-of-production depreciation method and to identify the type of companies which use this depreciation method.

Subject Matter Content	Learning Activities
Units of Production	1. View teacher's presentation about units of production depreciation method. (Appendix A, 2.4) 2. Discuss types of companies that might use this kind of depreciation. 3. Work problems as assigned by teacher.

2.5. On the unit test, the student will be able to figure sum-of-the-years digit and be able to work sum-of-the-years digit method problems with 80 percent accuracy.

Subject Matter Content	Learning Activities
How to figure the sum-of-the years digit Sum-of-the-years digit	1. View teacher presentation on sum-of-the-years digit method. 2. Work problems as assigned by teacher.

2.6. The student will be able to do declining balance problems on the unit test with 70 percent accuracy.

Subject Matter Content	Learning Activities
Declining balance depreciation method	1. View teacher's presentation on declining balance. (Appendix A, 2.6) 2. Read assigned text pages about declining balance. 3. Work sample problems as assigned by the instructor.

2.7. The student will be able to work four partial depreciation problems with 70 percent accuracy.

Subject Matter Content	Learning Activities
Partial year depreciation	1. Listen to teacher's presentation on partial year depreciation.
	2. Study examples found in textbook.
	3. Work problems as given by the instructor.

2.8. The student will be able to work ACRS problems on the unit tes with 70 percent accuracy.

Subject Matter Content	Learning Activities
Economic Recovery Tax Act of 1981 Accelerated Cost Recovery System ACRS table	1. View teacher's presentation on ACRS depreciation system.
	2. Look up the 1981 Tax Act in a tax guide or reference book.
	3. Use an ACRS chart and find some familiar items to figure depreciation.
	4. Discuss the advantages of ACRS method.
	5. Work problems as assigned by the instructor.

2.9. In the class the student will be able to work depletion problems.

Subject Matter Content	Learning Activities
Conversion of natural resources is called wasting	1. View teacher's presentation on depletion.
	2. Discuss which types of businesses might use the depletion method and how they

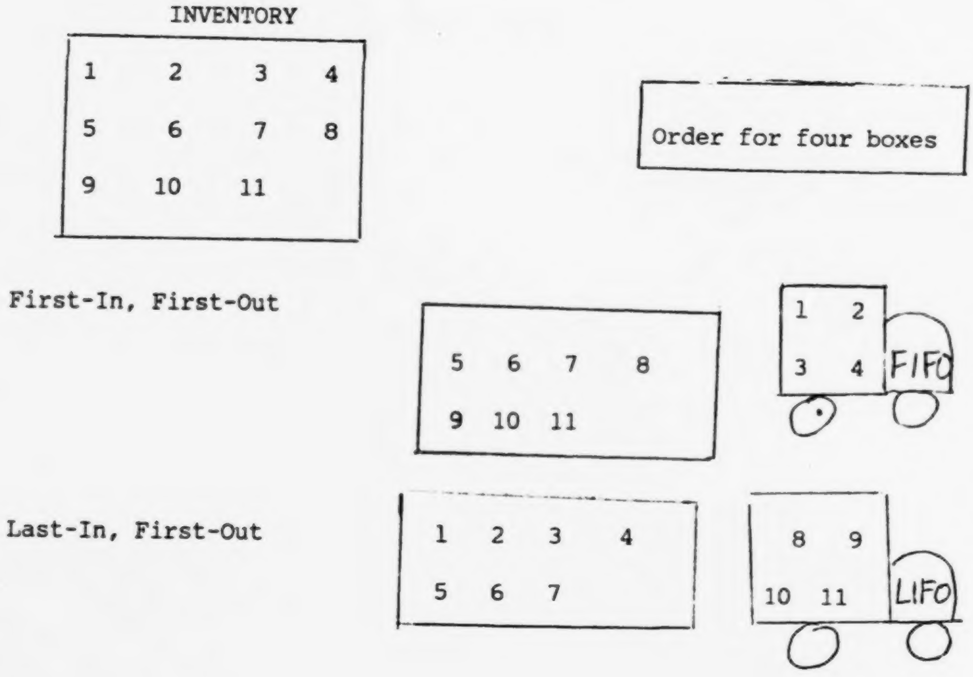
arrive at the figure to assign to units of wasting.

3. Take unit test or section test.

APPENDIX A

TRANSPARENCY FOR 1.4

COMPARISON OF LIFO AND FIFO


INVENTORY
1 2 3 4
5 6 7 8
9 10 11
Order for four boxes
First-In, First-Out
5 6 7 8
9 10 11
1 2
3 4
FIFO
Last-In, First-Out
1 2 3 4
5 6 7
8 9
10 11
LIFO

Directions:

1. Use squares of different colored art paper for the wording, numbers, and cutouts of trucks.
2. Use real or make up an order form for the four boxes.
3. To show the order of processing for FIFO and then LIFO, write FIFO on side of top truck and write LIFO on the bottom truck.

APPENDIX A

TRANSPARENCY FOR 1.5

THE AVERAGE COST METHOD OF INVENTORY

1. The average cost of a unit is the sum of the total cost divided by the total units available for sale during the period.

2. The inventory value is the average cost times the number of units on hand. (See the sample problem below.)

SAMPLE PROBLEM:

Given an inventory card from ACME industries, use the average cost method to find the September 30 inventory.

Inventory Card

Date	Quantity	Unit Cost	Issued	Balance
5/6	5	.25		5
7/10	7	.30	2	10
8/9	3	.30	7	6
9/11	4	.25	7	3
9/29	9	.30	1	11

Solution

Quantities	x unit cost	= total unit cost
5	.25	$1.25
7	.30	2.10
3	.30	.90
4	.25	1.00
9	.30	2.70
28		$7.95

Average cost: Total cost ($7.95) divided by total units available for sale during the period (28) equals average cost ($.284).

Inventory value: Average cost ($.284) x number of units on hand (11) equals inventory value ($3.12).

APPENDIX A

TRANSPARENCY FOR 1.7

RETAIL ESTIMATING INVENTORY METHOD

The Retail Estimating Inventory Method (REIM) is an estimated inventory at the retail and the wholesale methods.

To the beginning inventory, add purchases. These two equal the merchandise available for sale at the retail level. From this figure subtract net sales for the ending retail inventory. The ending inventory is then multiplied by a ratio of merchandise available for retail sale. An assumption is made that the ratio is the same as that of the ending cost inventory divided by the ending inventory. (See the sample below)

SAMPLE PROBLEM:

The September 30 inventory was valued at $4,000 (cost) and $7,000 (retail). By December 21, purchases valued at $10,000 (cost) and $15,000 (retail) were made. Net sales were $17,000.

	Cost	Retail
Beginning Inventory	$ 4,000	$ 7,000
plus purchases	10,000	14,000
Merchandise available for sale	14,000	21,000
minus net sales		17,000
December 31, 19-- Inventory		$ 4,000

$14,000/21,000 = 2/3 = .67 ratio of merchandise available for sale at cost to the merchandise available for sale at retail.

$4,000 x .67 = 2,680 Estimated value at cost of December 31 inventory.

APPENDIX A

TRANSPARENCY FOR 2.3

STRAIGHT LINE DEPRECIATION

A car cost $17,000 and has an estimated life of three years. The car has a trade-in value of $5,000. Using straight line depreciation, what would be the yearly depreciation? Show the depreciation schedule.

$17,000 is the original cost
-5,000 trade-in value

$12,000 Book value

$12,000 divided by 3 years equals $4,000 yearly depreciation

Depreciation Schedule:

Book Value		Yearly Depreciation		Book Value	Accumulated Depreciation	
$17,000	-	$4,000	=	$13,000	$ 4,000	Year 1
13,000	-	4,000	=	9,000	8,000	Year 2
9,000	-	4,000	=	5,000	12,000	Year 3
5,000	Trade-in Value					

APPENDIX A

TRANSPARENCY FOR 2.5

SUM-OF-THE-YEARS DIGIT METHOD

This depreciation method is based on the sum of the total years allowed for depreciation. To find the sum-of-the-years, simply total the years that are to be depreciated. For example, if an item is to last four years, add the years to be depreciated.

1 + 2 + 3 + 4 = 10   Ten is the base digit that will be used.

The formula to be used to determine depreciation is below:

Yearly depreciation = Sum-of-the-year digit x (original cost - resale)

Sample problem: A machine cost $22,000 and will last four years with $2,000 resale value. Find the yearly depreciation, accumulated depreciation and book value using the sum-of-the-years digit method of depreciation.

Digit		Book value		Yearly deprec.	Book Value	Accumulated Deprec.
Year one						
4/10	x	$20,000	=	$ 8,000	$12,000	$ 8,000
Year two						
3/10	x	20,000	=	6,000	6,000	14,000
Year three						
2/10	x	20,000	=	4,000	2,000	18,000
Year four						
2/10	x	20,000	=	2,000	0	20,000
				$20,000		

APPENDIX B

UNIT IX

PRETEST

1. Use the sum-of-the-years digit depreciation method to determine the yearly depreciation if an item cost $1,000 and will be used for four years.

   Year one $1,000 x 4/10 =
   Year two $1,000 x 3/10 =
   Year three $1,000 x 2/10 =
   Year four $1,000 x 1/10 =

2. If 50,000 units were purchased at a total cost of $700, what was the average cost per unit.

   $700 divided by 50,000 =

3. Using the figures below, determine the total inventory value using the average cost inventory method.

   17 x $10 =
   33 x 5 =
   19 x 5 =
   21 x 4 =
   80 ______

   To find the total inventory, add the four answers for one grand total divided by number of units available (80)

   Total divided by 80 for the average cost.

4. Using the ACRS depreciation method, determine each year's depreciation and the total depreciation for the three years for the item shown below.

   $7,500 x .25 =
   7,500 x .38 =
   7,500 x .37 =

   Total $______

APPENDIX B

UNIT IX

POSTTEST

Section I. Inventory

1. A business received the following shipments in this order: 10 boxes at $20 a box; 5 boxes at $25 a box; and 10 boxes at $15 a box. An order for 12 boxes is received. Find the ending inventory value using the LIFO and FIFO methods.

   Ending LIFO inventory______________
   Ending FIFO inventory______________

2. A business has received the following shipments in this order: 20 clubs at $2.00 each, and 25 clubs at $1.00 each. An order is received for 26 clubs. Find the ending inventory value using the LIFO and FIFO methods.

   Ending LIFO inventory______________
   Ending FIFO inventory______________

3. Using information obtained from the following chart, find the average cost per table and the value of the inventory of tables on July 31 if there were 15 tables on hand.

Date	Receipts	Unit price	Total cost
June 1	20	$200.00	$4,000.00
July 5	5	$150.00	$750.00
July 16	1	$175.00	$175.00
Total	26		$4,925.00

   Average cost per table____________________
   Ending Inventory value____________________

4. The March 30 inventory is valued at $5,000 cost and $10,000 retail. During April, the purchases were $5,000 cost and $15,000 retail with net sales of $7,000. Find the ending inventory retail to cost using the REIM method.

   Ending Inventory value____________________

5. The March 30 inventory is valued at $7,000 cost and $30,000 retail. April purchases were $100,000 cost and $175,000 retail with net sales of $135,000. Find the ending inventory retail to cost using the REIM method.

   Ending Inventory value____________________

6. Using the specific identification inventory method, find the value of the ending inventory with the information given below.

Number of units	Description	Unit cost	Value
3	Console TV 12 in.	$600	
2	Console TV 26 in.	700	
1	Console TV 48 in	1400	______
		Total Value	

7. Use the specific identification inventory method to determine the ending inventory value from the information given below.

Number of units	Description	Unit cost	Value
1	Trailer	$25,000	
1	Car	15,000	
2	Truck	12,000	______
		Total Value	

Section II Test: Depreciation

1. Jane Doe purchased some office furniture for $1200. The trade-in value is $200 after 5 years of use. Using the straight-line depreciation method, determine the annual depreciation.

Annual depreciation____________________

2. Jack uses his car for business purposes only. He bought a car for $13,000 and will drive it for 3 years. He expects to get $7,000 for the trade-in. Use the straight-line depreciation method to determine the annual depreciation.

Annual depreciation_____________________

3. A machine is estimated to produce 100,000 units. It cost $15,000 and has no trade-in value. Use the units-of-production cost method to find the depreciation per unit and depreciation for the first two years if 18,000 units are produced the first year and 15,000 units are produced the second year.

Depreciation per unit_______
First year depreciation_______
Second year depreciation______

4. A machine is estimated to produce 1,000 units. It cost $45,000 and has no trade-in value. Use the units-of-production method to find the depreciation per unit and depreciation for the first two years if 150 units are produced the first year and 175 units are produced the second year.

Depreciation per unit__________
First year depreciation_________
Second year depreciation_______

5. The original cost of a car was $10,000. After 3 years the trade-in value is estimated to be $2,000. Use the sum-of-the-years digit method to find the annual depreciation for each of the three years and the book value for each year.

Year	Depre. for year	Accum. deprec.	Book Value
1			
2			
3			

6. OASIS Whirlpool Company purchased equipment for $90,000. If depreciation is 20 percent a year, find the annual depreciation and year-end book value for a three-year period using the declining-balance method.

Year	Deprec. for year	Accum. deprec.	Book value
1			
2			
3			

7. Use the ACRS method to determine the annual depreciation and the book value for an automobile. The car cost $10,000. The depreciation rate is 25 percent the first year, 38 percent the second year, and 37 percent the third year.

	Yearly Depre.	Accum. Depre.	Book Value
Year 1			
Year 2			
Year 3			

APPENDIX B

UNIT IX

PRETEST AND POSTTEST KEYS

Pretest Key:

1. 400
   300
   200
   100

2. $.714

3. $170
   165
   95
   84
   $514

4. $1,875
   2,850
   2,775
   $7,500

Posttest Key:

1.

LIFO	FIFO
10 x $15 = $150	10 x $20 = $200
2 x $25 = $ 50	2 x $25 = $ 50
Total $200	Total $250

2.

LIFO	FIFO
25 x $1 = $25	20 x $2 = $40
1 x $2 = $ 2	6 x $1 = $ 6
Total $27	Total $46

3. $4,925 divided by 26 equals $189.42 average cost
   15 x $189.42 = $2,841.30 ending inventory value

4.

	Cost	Retail
Beginning Inv.	$5,000	$10,000
+ Purchases	5,000	15,000
Goods Avail. for sale	$10,00	$25,000

cost ratio = $10,000/$25,000
= 40 percent

End. Inv. at retail	$25,000
minus sales	7,000
Total	$18,000

$18,000 x .40 = $7,200 ending inv.
retail to cost

5.

	Cost	Retail
Beginning Inv.	$ 7,000	$ 30,000
+ Purchases	100,000	175,000
Goods Avail. for sale	$107,000	$205,000

cost ratio = $107,000/$205,000
= 52 percent

End. Inv. at retail	$205,000
minus sales	135,000
Total	$ 70,000

$70,000 x .52 = $36,000 end. inv.

6. $1,800
1,400
1,400
$4,600

7. $25,000
15,000
24,000
$64,000

Section II: Depreciation

1. $1,200 - $200 = $1,000 Value for depreciation
$1,000/5 = $200 annual depreciation

2. $13,000 - $7,000 = $6,000 Value for depreciation
$6,000/3 = $2,000 annual depreciation

3. $15,000/100,000 = $.15 per unit
First year $.15 x 18,000 units = $2,700
Second year $.15 x 15,000 units = $2,250

4. $45,000/1,000 = $45.00 per unit
First year $45.00 x 150 = $6,750
Second year $45.00 x 175 = $7,875

5.

Year	Deprec. for year	Accum. deprec.	Book Value
1	$4,000	$4,000	$4,000
2	$2,667	$6,667	1,333
3	$1,333	$8,000	0

6.

Year	Deprec. for year	Accum. deprec.	Book Value
1	$90,000 x .2 = $18,000	$18,000	$72,000
2	$72,000 x .2 = $14,400	32,400	57,600
3	$57,600 x .2 = $11,520	43,920	46,080

7.

Year 1	.25 x $10,000 = $2,500	$2,500	$7,500
Year 2	.38 x $10,000 = $3,800	$6,300	3,700
Year 3	.37 x $10,000 = $3,700	$10,000	0

APPENDIX C

EVALUATION AND TESTING

Ways to evaluate pupil growth:

1. Class participation

2. Homework

3. Quizzes

4. Unit test

5. Short reports

EQUIPMENT AND SUPPLIES

Students:

1. Textbook/workbook
2. Notebook
3. Newspaper or stock market report

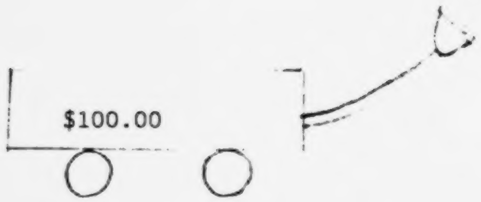
Teacher:

1. Textbook and manual
2. Overhead projector
3. Transparencies
4. Bulletin board supplies
5. Sample problems
6. Worksheets
7. Business forms
8. Conversion charts
9. Handouts
10. Calculator

APPENDIX D

BULLETIN BOARD IDEAS

STRAIGHT LINE DEPRECIATION



Original Cost = $100.00
Estimated Life = 3 years
Trade-in value on new model - $25.00

$100 - $25 = $75.00 Value for depreciation
$75 divided by 3 years = $25 yearly depreciation

Year One
$100 - $25 = $75 book value

Year two
$75 - $25 = $50 book value

Year three
$50 - $25 = $25 book value

Directions:

1. Use brightly colored construction paper to do the lettering and numbers.
2. The example is a little red wagon.

APPENDIX D

BULLETIN BOARD IDEAS

BOOKKEEPING EQUATION

ASSETS - LIABILITIES = OWNER'S EQUITY

(What you own) (What you owe) (Your financial worth)

Directions:

1. The lettering should be bright construction paper.
2. Surround the equation with pictures of assets and liabilities from magazines or catalogs.

APPENDIX E

SUPPLEMENTAL MATERIALS

Books

Dansby, Robert L., and Burton S. Kaliski. (1987). Business Mathematics. San Diego: Harcourt Brace Jovanovich, Publishers.

Fairbank, Rowell E., and Robert A. Schultheis. (1980). Mathematics for the Consumer. Cincinnati: South-Western Publishing Company.

Lange, Walter H., Robert D. Mason, and Temoleon G. Rousos. (1984). Business Mathematics. Boston: Houghton Mifflin Company.

Lanford, Francis G. (1981). Consumer Mathematics. Dallas: Allyn and Bacon, Inc.

Johnson, Thomas A., Carole Shepard Lissy, and James K. Seeck. (1985). Business Math Today. Dubuque, Iowa: William C. Brown Publishers.

Mason, Louis D. (1985). Applied Mathematics for Merchandising. New York: MPC Educational Publisher.

Salter, Jeffery. (1983). Practical Business Math Procedures. Homewood, Illinois: Richard D. Irwin, Inc.

Tuttle, Michael D. (1987). Business Math. Dubuque, Iowa: William C. Brown Publishers.

Periodicals

R. Kuttner. (1985, June). Tax Relief: Where Credit is Due. Business Week. p. 2.

M. Stevens. (1987, March). The New Tax Law: What it means for your Business. Working Woman. pp. 39-42.

G. W. Pardue. (1986, April). The Advantages of Equipment Leasing. Nations Business. p. 79.

Curbing Inventory. (1986, May 26). Fortune p. 29.

Golen, Steven. (1982, November/December). Combining 'How' and 'Why'in Beginning Accounting. The Balance Sheet. pp. 79-82.

UNIT X

INSURANCE AND INVESTMENTS

INTRODUCTION

Investments play an integral part in our lives. When we are younger, investments mostly take the form of insurances, but as we mature, our investments may include both stock and bond purchases.

Upon completion of this unit, the student will have a better understanding of the various forms investments can take. The information acquired should make the student a wiser and possibly a more prudent investor.

COMPETENCIES

1. Identify various aspects of life insurance investments, compute premiums, and determine cash value of policies.
2. Explore features of group insurance and compute premiums.
3. Analyze fire insurance and compute premiums.
5. Analyze investments in savings bonds, compute total investments, and compute interest income.
6. Explore aspects of stocks including reading of stock market paper, computing cost of stocks, and computing results that arise from stock sales.

GENERAL PERFORMANCE OBJECTIVES/GOALS

1. Demonstrate correct techniques for dealing with investments in insurance, stocks, and bonds.
2. Accurately apply fundamental math skills to compute investment factors.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to correctly identify the terminology relating to life insurance with 80 percent accuracy on a unit test.

1.2. The student will be able to discuss the kinds of life insurance available with 80 percent accuracy on a unit test.

1.3. Given a list of varying factors, the student will be able to calculate premium rates with 80 percent accuracy.

1.4. The student will be able to identify terminology relating to cash value of life insurance with 80 percent accuracy on a unit test.

1.5. The student will be able to compute cash value of life insurance using three different methods with 80 percent accuracy.

2.1. The student will be able to discuss the features of Group Insurance and list the types of coverage available in group plans with 80 percent accuracy on a unit test.

2.2. Using premium rate tables, the student will be able to compute premiums on group insurance policies with 80 percent accuracy on a unit test.

3.1. The student will be able to identify the factors that affect the amount paid by the insurance company in the event of loss from fire with 80 percent accuracy on a unit test.

3.2. The student will be able to compute liability of insurer for fire losses with 80 percent accuracy.

4.1. The student will be able to identify terminology relating to automobile insurance with 80 percent accuracy on a unit test.

4.2. The student will be able to figure premiums using tables with risk factors figured into them with 80 percent accuracy.

5.1. The student will be able to correctly identify terminology relating to investing in bonds with 80 percent accuracy on a unit test.

5.2. The student will be able to state the market price of a bond from the quoted price and compute amount to be paid for bond purchase with 80 percent accuracy.

5.3. The student will be able to compute total investment when market price and amount purchased are known and when the broker's commission is considered with 80 percent accuracy.

5.4. The student will be able to figure interest income on bonds with 80 percent accuracy on a test.

6.1. The student will be able to identify terminology relating to buying of stocks with 80 percent accuracy on a test.

6.2. The student will be able to read and interpret stock market quotations from the stock market paper with 80 percent accuracy.

6.3. The student will be able to compute cost of stock including commission with 80 percent accuracy on a test.

6.4. The student will be able to compute dividends earned on stocks with 80 percent accuracy on a test.

6.5. The student will be able to compute net proceeds and net profits or net losses when stocks are sold with 80 percent accuracy on a unit test.

METHODOLOGY

This unit introduces the student to the various aspects of insurance and stocks and bonds. The student will be shown the types of insurance available including life, group, fire, and automobile. Computation of premiums will be taught for each type of insurance. Also, the student will be exposed to the terminology and relevant facts concerning both the stock market and bond investments.

Textbooks, business forms and problems, visual aids, teaching transparencies, guest speakers, and field trips will be used in this unit.

There are four section tests provided with answer keys. If desired, the teacher may select items from each section test to make one unit test to be administered upon the completion of Unit X.

The accuracy levels assigned in the specific performance objectives may be adjusted to best suit the individual school system's requirements or the teacher's desires.

SUGGESTED INTEREST APPROACHES

1. Have the student prepare a report on the services that are offered by a local brokerage firm. They could call or visit the local brokerage firm, collect information, then compose a report on their findings.

2. Take the students on a field trip to a local brokerage firm. Tell the public relations person in advance what aspects of the brokerage firm you would like for the students to see.

3. The "USA Today" Newspaper has an excellent publication titled "USA Today/Classline" that is correlated with their newspaper. Teachers can use the information found in this newspaper to make transparencies of the stock market paper and teach the various columns found on the paper. The glossary found at the back of the publication can be used to teach the necessary terminology. This is also an excellent source of supplementary learning activities to be used when teaching the stock market and bond purchases sections of this unit. The address for more information is:

USA TODAY/CLASSLINE
P. O. Box 500CL
Washington, DC 20044

There is also a toll free number that can be used. The number is: 1-800-368-3024.

UNIT X OUTLINE

INSURANCE AND INVESTMENTS

I. Investing in Life Insurance
  A. Terminology
    1. Insurer
    2. Insured
    3. Premium
    4. Policy
  B. Kinds of policies
  C. Computing premiums
  D. Terminology for cash value of policies
    1. Beneficiary
    2. Cash value
    3. Extended term life
    4. Paid-up life
    5. Policy loan
  E. Computing cash value of policies

II. Group Insurance
  A. Features of group insurance and types of coverage
  B. Computing premiums

III. Fire Insurance
  A. Identifying factors that affect amount paid for losses
  B. Computing insurer's liability

IV. Automobile Insurance
  A. Terminology
    1. Bodily injury
    2. Collision
    3. Comprehensive damage
    4. Property damage
  B. Computing premiums

V. Investing in Savings Bonds
  A. Terminology
    1. Par value
    2. Market value
    3. Premium
    4. Discount
    5. Broker
    6. Broker's commission
  B. Computing market prices using quoted prices
  C. Computing total investment including broker's fees
  D. Computing interest income from bond investment

VI. Buying Stocks
    A. Terminology
        1. Shareholders
        2. Stock certificates
        3. Dividends
        4. Par value
        5. Market price
        6. No-par stock
    B. Reading and interpreting stock market tables
    C. Computing cost of stock including commission fee
    D. Computing stock income
    E. Computing net proceeds, net profits, and net losses from sales of stocks

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to correctly identify the terminology relating to life insurance with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: insurer insured policy premium	1. Check accuracy of definitions during oral discussion. 2. Read textbook pages assigned on topic.

1.2. The student will be able to discuss the kinds of life insurance available with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Different types of life insurance policies available to insured	1. View film provided by the teacher on investing in life insurance. 2. Attend field trip to insurance agency. 3. Read textbook pages assigned on topic.

1.3. Given a list of varying factors, the student will be able to calculate premium rates with 80 percent accuracy.

Subject Matter Content	Learning Activities
Computing the premium rates depending on varying factors age of insured type of insurance desired by amount of insurance desired	1. View presentation from agent who works for a life insurance company in the area. 2. View sample problem as worked the teacher. 3. Complete problems chosen by the teacher.

1.4. The student will be able to identify terminology relating to cash value of insurance with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: beneficiary cash value extended term life policy loan paid-up life	1. Define a list of vocabulary words using textbook. 2. Read assigned pages on topic. 3. Complete word search puzzle on terminology found in 1.1 to 1.4. (Appendix A, 1.4)

1.5. The student will be able to compute cash value of insurance using three different methods with 80 percent accuracy.

Subject Matter Content	Learning Activities
Computing cash value using three methods: 1. policy loan 2. paid-up life 3. extended term	1. View presentation given by teacher on these methods. 2. Complete assigned worksheets prepared by teacher for all three methods. 3. Complete Section I Test. (Appendix B)

2.1. The student will be able to discuss the features of group insurance and list the types of coverage available in group plans with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
The features of group life insurance that distinguish it from individual policies and the types of coverage available	1. View presentation of guest speaker from insurance firm in the area. 2. Read assigned pages in textbook. 3. View bulletin board as prepared by the teacher comparing individual policies to group policies.

2.2. Using premium rate tables, the student will be able to compute premiums on group insurance policies with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Computing premium rates using tables with cost specifications as shown in math textbook	1. View presentation by teacher on methods used to compute premiums. 2. Complete worksheet prepared by teacher on computing rates. 3. As called on by the teacher, the students will discuss answers given on worksheet. 4. Students will bring a copy of the insurance policy on their parents' homes or get blank copies from their family insurance agency.

3.1. The student will be able to identify the factors that affect the amount paid by an insurance company in the event of loss from fire with 80 percent accuracy on a unit test.

Subject Matter Content

Identifying factors that affect amount paid for fire losses:
1. face value of policy
2. actual damage policy
3. co-insurance

Learning Activities

1. View film as provided by the teacher.

2. Read pages assigned in textbook on topic.

3. View transparency on fire losses. (Appendix A, 3.1)

4. Complete word search puzzle covering some of the terms from 1.1 through 3.1. (Appendix A, 3.1)

3.2. The student will be able to compute liability of insurer for fire losses with 80 percent accuracy.

Subject Matter Content

Computing insurer's liability in fire losses

Learning Activities

1. View presentation given by teacher on methods involved.

2. Work exercises assigned by teacher.

3. Complete quiz prepared by teacher.

4.1. The student will be able to identify terminology relating to automobile insurance with 80 percent accuracy on a unit test.

Subject Matter Content

Terminology:
- bodily injury
- collision
- comprehensive damage
- property damage

Learning Activities

1. Complete a handout of terms and definitions as required by the teacher.

2. View presentation given by guest speaker from an insurance company as chosen by the teacher.

3. Read assigned pages on topic.

4.2. Using tables with risk factors figured into them, the student will be able to figure premiums with 80 percent accuracy.

Subject Matter Content	Learning Activities
Computing premiums for various coverages using tables found in most math textbooks	1. View presentation as prepared by teacher demonstrating the correct methods to use in applying tables of rates. 2. View bulletin board as teacher discusses different factors of risk and coverage. (Appendix D) 3. Complete Section II Test. (Appendix B)

5.1. The student will be able to identify terminology relating to investing in bonds with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: par value market value premium discount broker broker's commission	1. View film provided by teacher on topic. 2. Read and discuss various definitions of investment terms.

5.2. The student will be able to state the market price of a bond from the quoted price and compute amount to be paid for bond purchase with 80 percent accuracy.

Subject Matter Content	Learning Activities
Stating market price on selected problems and computing amount to be paid for bond purchase	1. Students will orally present the answers to problems as called on by the teacher. 2. Students will work selected problems on board and discuss their answers with the class. 3. Work handout prepared by teacher for homework.

5.3. The student will be able to compute total investment when market price and amount purchased is known and when the broker's commission is considered with 80 percent accuracy.

Subject Matter Content	Learning Activities
Computing total investment in bonds	1. View bulletin board as teacher explains the methods used to calculate the total investment. 2. Complete exercises in workbook.

5.4. The student will be able to figure interest income on bonds with 80 percent accuracy on a test.

Subject Matter Content	Learning Activities
Figuring interest income on bonds	1. View transparency on figuring interest income and formula used. (Appendix A, 5.4) 2. Work problems from workbook. 3. Complete Section III Test. (Appendix B)

6.1. The student will be able to identify terminology relating to buying of stocks with 80 percent accuracy on a unit test.

Subject Matter Content	Learning Activities
Terminology: shareholder stock certificate dividends par value market price no-par stock	1. View presentation given by guest speaker from a local brokerage firm as chosen by the teacher. 2. Participate in spelling bee of stock market terms. 3. Read pages assigned in textbook.

6.2. The student will be able to read and interpret stock market quotations from the stock market paper with 80 percent accuracy.

Subject Matter Content	Learning Activities
Reading of stock market paper and interpreting quotations	1. View transparency from the stock market paper as the teacher explains each column. 2. Read columns and interpret quotes as called on by the teacher. 3. Students will bring in the stock market section of the paper for three consecutive days and prepare a report on a particular stock as assigned by the teacher.

6.3. The student will be able to compute cost of stock including commission with 80 percent accuracy on a test.

Subject Matter Content	Learning Activities
Computing cost of stock	1. View teacher's presentation on figuring of stock cost with commission considered. 2. Work problems in workbook as assigned and then work exercises on the board and discuss answers with the class as called on by the teacher.

6.4. The student will be able to compute dividends earned on stocks with 80 percent accuracy on a test.

Subject Matter Content	Learning Activities
Computing dividends earned on stocks	1. View teacher's presentation on figuring dividends. 2. Complete worksheets prepared by the teacher. 3. Attend field trip to a local brokerage firm.

6.5. The student will be able to compute net proceeds and net profits or net losses when stocks are sold with 80 percent accuracy.

Subject Matter Content	Learning Activities
Computing net proceeds, net profit, and net loss on stock sales.	1. View transparency covering net profit and net loss. (Appendix A, 6.5)
	2. Work problems in workbook as assigned by the teacher.
	3. Prepare a report on the stock market and present it to the class.
	4. Complete Section IV Test. (Appendix B)

APPENDIX A

LEARNING ACTIVITY FOR 1.4

WORD SEARCH PUZZLE

DIRECTIONS: Find the following words in the puzzle below:

1. Beneficiary
2. Extended Life
3. Insured
4. Insurer
5. Paid-up Life
6. Premium

P	O	L	I	C	Y	D	A	P	E
R	G	A	S	O	E	P	E	D	X
E	B	I	T	F	D	A	R	O	T
M	E	N	H	I	E	I	A	T	E
I	N	S	U	R	E	D	P	C	N
U	E	U	A	K	J	U	A	I	D
M	F	R	L	R	M	P	D	O	E
P	I	E	T	N	P	L	B	A	D
A	C	R	P	A	T	I	C	E	T
D	I	R	O	N	P	F	A	G	E
T	A	A	O	S	R	E	T	O	R
B	R	M	O	M	D	A	D	N	M
C	Y	T	R	S	T	P	A	E	A
A	S	O	Z	O	N	E	P	O	T

APPENDIX A

LEARNING ACTIVITY FOR 1.4

WORD SEARCH PUZZLE

KEY

P	O	L	I	C	Y	D	A	P	E
R	G	A	S	O	E	P	E	D	X
E	B	I	T	F	D	A	R	O	T
M	E	N	H	I	E	I	A	T	E
I	N	S	U	R	E	D	P	C	N
U	E	U	A	K	J	U	A	I	D
M	F	R	L	R	M	P	D	O	E
P	I	E	T	N	P	L	B	A	D
A	C	R	P	A	T	I	C	E	T
D	I	R	O	N	P	F	A	G	E
T	A	A	O	S	R	E	T	O	R
B	R	M	O	M	D	A	D	N	M
C	Y	T	R	S	T	P	A	E	A
A	S	O	Z	O	N	E	P	O	T

APPENDIX A

TRANSPARENCY FOR 3.1

FIRE INSURANCE

Three factors affect the amount paid for fire losses:

1. Face value of policy
2. Actual damage
3. Coinsurance

The formula used for determining the amount paid is:

$$\frac{\text{AMOUNT OF INSURANCE}}{\text{PROPERTY VALUE X COINSURANCE \%}} \times \text{LOSS}$$

For example: Property worth $100,000 is insured for $60,000. If the policy contains an 80% coinsurance clause and there is a $30,000 fire loss, they will pay $22,500.

$$\frac{\$60{,}000}{\$100{,}000 \times .80} \times \$30{,}000 = \$22{,}500$$

APPENDIX A

TRANSPARENCY FOR 5.4

BOND INTEREST INCOME

Income from bonds is in the form of interest. To figure interest income on bonds, use this formula:

INTEREST = PAR VALUE X RATE X TIME

The time will be the number "1" because interest is based on an annual rate and 360/360 = 1. Therefore, if you have a bond with a $1,000 par value that pays 10 1/2% interest, you would figure the interest income as shown below.

PAR VALUE X RATE X TIME = INTEREST

$1,000 x .105 x 1 -= 105.00

```
       $1,000     PAR VALUE

  x      .105     RATE
         ----
         5000
        0000
       1000
      -------
      105.000
 x          1     TIME
      -------
      $105.00     INTEREST
```

APPENDIX A

TRANSPARENCY FOR 6.5

NET PROCEEDS, NET PROFIT, AND NET LOSS ON STOCK SALES

When figuring net proceeds, which is the amount earned when stock is sold, use the following formula:

NET PROCEEDS = MARKET PRICE - (COMMISSIONS + TAXES + FEES)

For example:

100 shares of Sanvo Electronics selling at 28 with fees of $69

100 x 28 - $69 = $2,731 NET PROCEEDS

To figure net profit or net loss, apply the fomulas below:

NET PROCEEDS - TOTAL COST = NET PROFIT

TOTAL COST - NET PROCEEDS = NET LOSS

If the amount of net proceeds is greater than the total cost, there is a profit. If it is less than the total cost, the result is a loss.

APPENDIX B

UNIT X

PRETEST

1. Joan bought 30 shares of stock at 98 3/4. Brokerage fees and other expenses totaled $29.35. Three months later, she sold them for 101 1/2 per share, less fees and taxes totaling $31.17. What was Joan's gain from buying and selling the stock?

2. What is the market price in dollars and cents if the stock market papers list a stock at 89 1/2?

3. A bond with a par value of $1,000 is sold at 111 1/4. At what price is this bond sold and is this bond sold at a premium or a discount?

4. A home worth $75,000 was insured for $57,000 under a policy with a 80% coinsurance clause. A fire caused a loss of $2,000. How much did the insurance company pay?

5. Does group life insurance have any portion paid by the employer?

6. James can buy $100/300,000 bodily injury insurance by paying 177% of the $20/40,000 annual premium of $136. What is the annual premium of the higher insurance limit?

7. Shawn pays a premium of $16.10 per $1,000 for a $5,000 life insurance policy. Her policy paid a dividend of $12.78, which she uses to reduce her premium. How much should she send to the insurance company when she pays her premium?

8. A stock quotation of 28 1/2 means what?

9. Al bought 200 shares of 8% preferred stock with a par value of $175. What is his annual dividend income?

10. If at the age of 20 you buy a $6,000 whole life insurance policy that cost $12.20 per $1,000 annually, how much will you pay each year for your premium?

APPENDIX B

UNIT X

PRETEST ANSWER KEY

1. $764.48
2. $89.50
3. $112.50--sold at a premium
4. $1,900
5. Yes
6. $240.72
7. $67.72
8. $28.50
9. $2,800
10. $73.20

APPENDIX B

UNIT X

SECTION I TEST

I. Terminology--Directions: Match the terms on the right with the statement to the left that means the same.

_____1. The party whose life or property is insured.

_____2. The insurance company.

_____3. A smaller amount of insurance for life, with no more premiums, bought with cash value.

_____4. The amount paid for insurance.

_____5. An insurance contract.

_____6. A loan of part or all of the cash value of a policy made by an insurance company to an insured.

_____7. The person to whom life insurance benefits are paid when the insured dies.

_____8. The value of an insurance policy if it is canceled.

_____9. Provided full coverage for a limited time to an insured whose policy is canceled.

A. Premium

B. Paid-up Life

C. Insured

D. Policy Loan

E. Insurer

F. Extended Term Life

G. Policy

H. Cash Value

I. Beneficiary

II. Life Insurance Policies

1. List the four types of life insurance policies available to insured and give a brief description of each.

A.

B.

C.

D.

2. Using the table below, compute the premiums for each problem beneath the table.

ANNUAL PREMIUMS FOR $1000 OF LIFE INSURANCE

Age of Insured	10-Year Term	Whole Life	20-Payment Life	20-Year Endowment
15	$5.30	$10.95	$18.60	$43.65
20	5.40	12.10	20.60	44.20
25	5.50	13.60	23.20	44.50
30	5.70	16.40	26.40	45.50

A. How much more is the annual premium on $6,000 of a whole life policy bought at age 30 than the same policy bought at age 25?

B. How much more is the annual premium on a 20-year endowment policy for $9,000 at age 20 than on a whole life policy?

C. At age 25, how much less is the annual premium on a $14,000, 10-year term policy than on a whole life policy?

D. A 20-payment life policy for $6,000 is taken out at age 25. What total amount will be paid in premiums by the end of 20 years?

III. Cash Value of Policies

1. What are three ways to use the cash value of life insurance policies?

A.

B.

C.

2. Using the chart below, complete the problems beneath the table.

TABLE OF CASH VALUES

End of Year	Cash and Loan Values per $1000	Paid-Up Whole Life per $1000	Extended Term Years	Extended Term Days
1	$ 0	$ 0	0	0
5	42.50	125	12	310
10	112.00	250	20	18
15	182.50	390	22	151
20	255.40	505	22	310

A. How much cash would you get if you canceled a $20,000 policy after paying premiums for 15 years?

B. You have paid premiums on a $20,000 policy for 10 years. What amount could you borrow on your policy?

C. How much paid-up life insurance could you buy if you canceled a $50,000 policy after making payments for 20 years?

D. After paying premiums for 10 years, Sharon Jones cancels her policy. How many years and days of term insurance can Sharon buy with the cash value of the policy?

APPENDIX B

UNIT X

SECTION II TEST

I. Group Insurance

1. What are two features that make group insurance different from individual policies?

   A.

   B.

2. What are two types of coverage available through group insurance?

   A.

   B.

3. Using the table below, work the problems beneath the table.

	COVERAGE	MONTHLY PREMIUMS EMPLOYEE	 DEPENDENTS
A.	Life Insurance	$0.50/$1000	---
B.	Accidental Death	0.15/$1000	---
C.	Weekly Indemnity	4.80	---
D.	Hospilization	12.60	24.50
E.	Surgical Expense	4.00	10.30
F.	In-hospital Medical Care	0.90	1.50
G.	Major Medical	3.75	5.90

A. Henry works for a company that carries coverage "A" for $6,000, "B" for $6,000, "D", "F", and "G". The company contributes 60% of the employee (only) premium and Henry insures his family. How much is Henry's monthly premium?

B. Susan works for a company that carries coverage "A" for $5,000, "C", "D", "E", "F", and "G". The company contributes 75% of the employee (only) premium and Susan insures her family. How much is Susan's monthly premium?

C. Margie works for a company that carries coverage "A" for $8,000, "B" for $5,000, "D", "E", "F", and "G". The company contributes 50% of the employee (only) premium and Margie insures her family. How much is Margie's monthly premium?

II. Fire Insurance

1. What are two factors that affect the amount paid for fire losses?

   A.

   B.

2. The formula for amount paid for fire losses is:

$$\frac{\text{Amount of Insurance Carried}}{\text{Property Value x Coinsurance \%}} \quad \text{x LOSS}$$

Use this formula to work the following problems:

A. Property worth $250,000 is insured for $130,000. If the fire insurance policy contains an 80% coinsurance clause, what is the insurer's liability on a fire that causes $180,000 worth of damage?

B. Property worth $300,000 is insured for $200,000. If the fire insurance policy contains an 80% coinsurance clause, what is the insurer's liability on a fire that causes $250,000 worth of damage?

III. Automobile Insurance

Directions: The tables below will be used for the problems on the next page.

TABLE 1: ANNUAL PREMIUMS FOR BODILY INJURY AND PROPERTY DAMAGE

			USED FOR	
Type of Insurance	Limits	Pleasure	Driving to	Business
Bodily Injury	$20/$40,000	$130	$135	$155
Property Damage	$10,000	80	100	107

TABLE 2: RATES FOR HIGHER LIMITS

BODILY INJURY		PROPERTY DAMAGE	
Maximum Limits	Percent of $20/$40,000 Premium	Maximum Limits	Percent of $10,000 Premium
$ 25/50,000	110%	$ 25,000	105%
50/100,000	150%	50,000	107%
100/300,000	175%	100,000	115%

A. On a car used for pleasure only, the owner buys $20/40,000 bodily injury and $10,000 property damage coverage for one year. What is the total cost of the premium?

B. On a car used for driving to work, the owner buys $20/40,000 bodily injury and $10,000 property damage coverage for one year. What is the total cost of the premium?

C. On a car used for driving to work, the owner buys $25/50,000 bodily injury and $25,000 property damage coverage for one year. What is the total cost of the premium?

D. On a car used for pleasure only, the owner buys $25/50,000 bodily injury and $10,000 property damage coverage for one year. What is the total cost of the premium?

APPENDIX B

UNIT X

SECTION III TEST

I. Terminology--Directions: Match the terms on the right with the statement on the left that means the same.

_____	1. Selling price below par	A. Broker
_____	2. Selling price above par	B. Par Value
_____	3. A dealer in stocks and bonds	C. Market Value
_____	4. Face value of a bond	D. Broker's Commission
_____	5. The fee charged by a broker	E. Premium
_____	6. Any selling price of a bond	F. Discount

II. Bond Quotations and Total Investments

1. State the market price of one $1,000 bond at each quoted price.

A. 97 = __________ B. 101 1/2 = __________

C. 115 = __________ D. 102 3/4 = __________

E. 109 = __________ F. 98 1/4 = __________

2. Find the total investment in each of the following bond purchases. The par value of each bond is $1,000. The commission in each case is $5 per bond.

A. 15 at 97 _____ B. 8 at 94 _____

C. 7 at 102 1/2 _____ D. 10 at 115 3/4 _____

E. 9 at 99 1/4 _____ F. 12 at 85 1/2 _____

III. Interest Income on Bonds

Directions: Find the annual income in each problem:

1. 3 $1,000, 9% bonds
2. 19 $1,000, 10 1/2% bonds
3. 12 $1,000, 12% bonds
4. 10 $1,000, 7 1/4% bonds

APPENDIX B

UNIT X

SECTION IV TEST

I. Terminology--Directions: Match the terms on the right with the statement to the left that means the same.

_____ 1. Face value of stock

_____ 2. Stock without par value

_____ 3. Selling price of stock

_____ 4. Anyone who owns stock

_____ 5. Profits distributed to shareholders

_____ 6. A paper showing shares owned

A. Shareholder

B. Stock Certificate

C. Par Value

D. No-Par Stock

E. Market Price

F. Dividends

II. Reading of Stock Market Paper--Directions: Using the section of the stock market paper given to you by your teacher, answer the following questions:

1. What stock paid the highest dividend? What amount was paid?

2. During the past 52 weeks, which stock sold at the highest price of all?

3. What stock paid the lowest dividend? What amount was paid?

4. How many shares of the first stock listed on the paper were sold?

5. Which stock had the greatest net change for the day?

6. For which stocks was the last price also the lowest price?

III. Cost of Stock Purchases--Directions: Find the cost of each stock purchase below.

1. 100 shares at a market price of 42 5/8 and a commission fee of $85.00.

2. 50 shares at a market price of 25 and a commission fee of $95.00.

3. 200 shares at a market price of 35 1/2 and a commission fee of $115.00.

4. 150 shares at a market price of 68 3/4 and a commission fee of $90.45.

IV. Dividends Earned on Stocks--Directions: Find the total dividend received by each shareholder.

1. 60 shares owned with a par value of $100 per share and an annual dividend rate of 5%.

2. 100 shares owned with a par value of $50 per share and an annual dividend rate of 7%.

3. 75 shares owned with a par value of $100 per share and an annual dividend rate of 6%.

4. 75 shares owned with a dividend rate of $1.25 per share, paid quarterly.

5. 45 shares owned with a dividend rate of $0.75 per share, paid quarterly.

V. Selling Stocks

1. Compute the net proceeds from the sales of the stock below:

SHARES SOLD	SELLING PRICE	COMMISSIONS, TAXES AND FEES	NET PROCEEDS
100	26	$ 68.00	____________
150	12 1/2	45.00	____________
60	38	55.00	____________
200	8 1/2	42.00	____________

2. Compute the profit or loss in each of these sales:

SHARES TRADED	SELLING PRICE	COMMISSION, TAXES & FEES	TOTAL COST OF PURCHASE	NET PROCEEDS
100	18	$ 45.29	$1,332.50	____________
50	9 1/2	22.25	412.00	____________
20	47 1/8	29.95	947.87	____________

APPENDIX B

UNIT X

SECTION I ANSWER KEY

I. 1. C
   2. E
   3. B
   4. A
   5. G
   6. D
   7. I
   8. H
   9. F

II. 1. A. Term Life Insurance
       B. Whole Life Insurance
       C. Limited Payment Life Insurance
       D. Endowment Life Insurance

   2. A. $16.80
       B. $288.90
       C. $113.40
       D. $2,784.00

III. 1. A. Policy Loan
       B. Paid-Up Life Insurance
       C. Extended Term Life Insurance

   2. A. $3,650.00
       B. $2,240.00
       C. $25,250
       D. 20 years 18 days

UNIT X

SECTION II ANSWER KEY

I. 1. A. The cost is shared by the employer
       B. Medical examinations usually are not required

   2. A. Term Life Insurance
       B. Surgical Expense

   3. A. $40.36
       B. $49.34
       C. $55.20

II. 1. A. Face value of policy
       B. Actual loss

2. A. $117,000.000
   B. $208,333.32

III. 1. $210.00
2. $235.00
3. $253.50
4. $223.00

UNIT X

SECTION III ANSWER KEY

I. 1. F
2. E
3. A
4. B
5. D
6. C

II. 1. A. $970
B. $1,015
C. $1,150
D. $1,027.50
E. $1,090
F. $982.50

2. A. $14,625.00
B. $7,560.00
C. $7,210.00
D. $11,625.00
E. $8,977.50
F. $10,320.00

III. A. $270.00
B. $1,995.00
C. $1,440.00
D. $725.00

UNIT X

SECTION IV ANSWER KEY

I. 1. C
2. D
3. E
4. A
5. F
6. B

II. All answers in this section will depend upon the stock market paper chosen by the instructor.

III. 1. $4,347.50
2. $1,345.00
3. $7,215.00
4. $10,402.95

IV. 1. $300.00
2. $350.00
3. $450.00
4. $375.00
5. $135.00

V. 1. $2,532.00
$1,830.00
$2,225.00
$1,583.00

2. $422.21 Profit
$40.75 Profit
$35.32 Loss

APPENDIX C

EVALUATION AND TESTING

Ways to Evaluate Pupil Growth:

1. Class Participation

2. Homework

3. Quizzes

4. Unit Test

5. Word Search

EQUIPMENT AND SUPPLIES

Student:

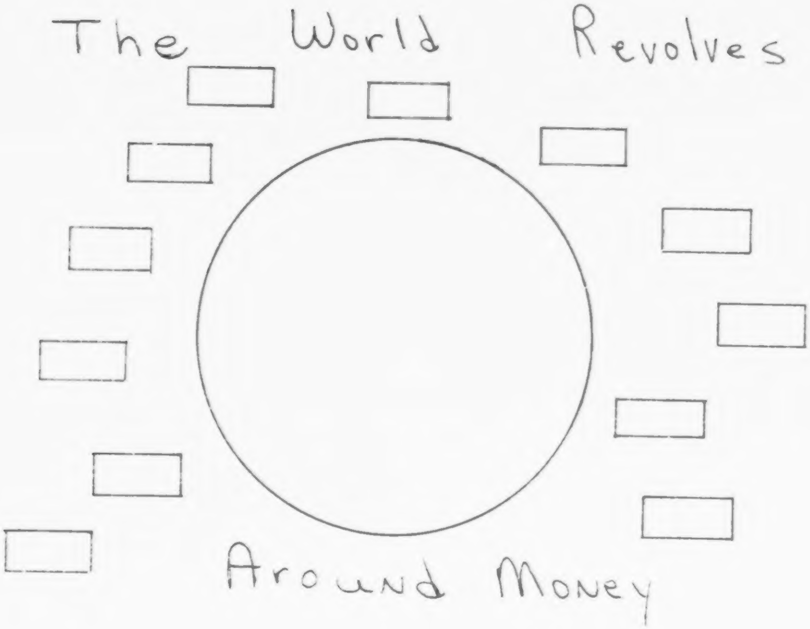
1. Textbook/Workbook
2. Notebook
3. Newspaper
4. Insurance Forms

Teacher:

1. Textbook and Manual
2. Overhead Projector
3. Transparencies
4. Bulletin Board Supplies
5. Sample Problems
6. Worksheets
7. Business Forms
8. Handouts
9. Calculator

APPENDIX D

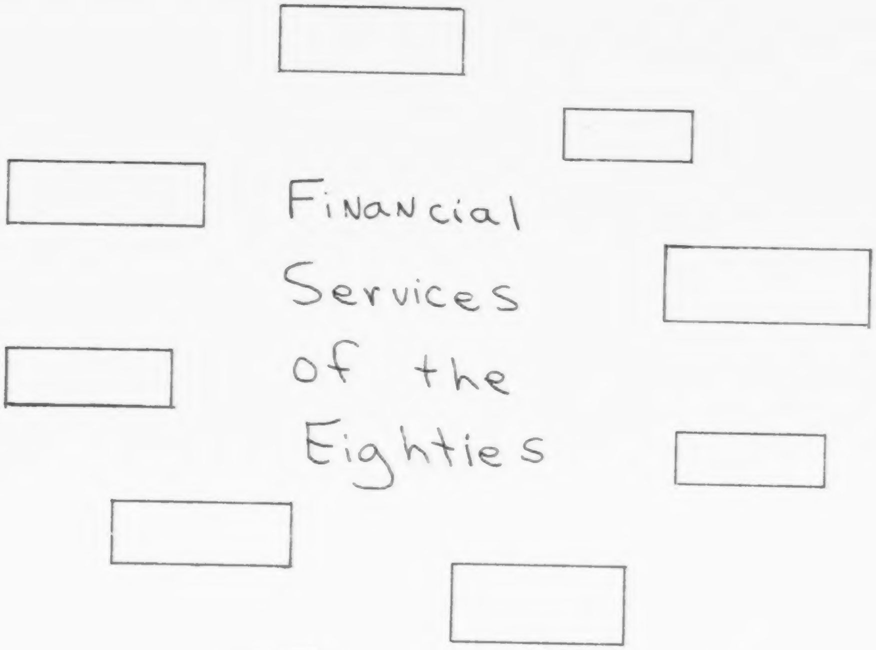
BULLETIN BOARD IDEA


The World Revolves
Around Money

DIRECTIONS:
1. The title will be THE WORLD REVOLVES AROUND MONEY
2. Use voided checks, play money from games, stock certificates, bonds, and other forms of investments to place around the picture of the globe.

APPENDIX D

BULLETIN BOARD IDEA



DIRECTIONS:

1. Title for bulletin board may be FINANCIAL SERVICES OF THE EIGHTIES. This title is placed in the middle of the bulletin board.

2. All around this title, place pamphlets, leaflets, pictures of stock market paper, pictures of bonds, and other papers which you can acquire from banks, brokerage firms, and other financial institutions in the area.

APPENDIX E

SUPPLEMENTARY MATERIALS

Books

Dillon, William M. (1985). Business Mathematics. Albany, New York: Delmar Publishers, Inc.

Fairbank, Roswell E. and Robert A. Schultheis. (1983). Consumer Math. Cincinnati, Ohio: South-Western Publishing Company.

Fairbank, Roswell E., Robert A. Schultheis, and Raymond M. Kaczmarski. (1985). Applied Business Mathematics. Cincinnati, Ohio: South-Western Publishing Company.

Reed, James H. and Walter E. Williams. (1984). Essentials of Business Mathematics. Dubuque, Iowa: William C. Brown Publishers.

Periodicals

Martin J. Lecker. (1984, November). Increase your Student's Stock Market Literacy. Business Education Forum, pp. 13-14.

Simulations

"USA TODAY/CLASSLINE," prepared by USA Today, P. O. Box 500 CL, Washington, D. C. 20044 or call 1-800-368-3024.

Video Cassettes

"Bonds" from the Investing Series,
(1/2 inch video cassette Beta, 59 minutes)
Morris Home Video, 413 Avenue G, Redondo Beach, CA 90277

"Investing in Stocks,"
(3/4 or 1/2 inch video cassette, 25 minutes)
Beacon Films, P.O. Box 575, 1250 Washington Street, Norwood, MA 02062

"Investments,"
(3/4 or 1/2 inch video cassette, 30 minutes)
MD Center for Public Broadcasing, Owings Mill, MD 2117

"Understanding the Business World and Stocks,"
(1/2 inch video cassette BETA/VHS, 58 minutes)
Morris Home Video, 413 Avenue G, Redondo Beach, CA 90277

"Investments,"
(3/4 or 1/2 inch video cassette, 30 minutes)
MD Center for Public Broadcasing, Owings Mill, MD 2117

"Understanding the Business World and Stocks,"
(1/2 inch video cassette BETA/VHS, 58 minutes)
Morris Home Video, 413 Avenue G, Redondo Beach, CA 90277

UNIT XI

BUSINESS MEASUREMENTS, STATISTICS, AND REPORTS

INTRODUCTION

Measurements, both physical and financial, are an integral part of our lives. This unit will utilize the basic math skills acquired in previous units to build upon measurement problems. Emphasis will be on actual physical measurement, such as volume and weight and for financial measurement of business worth.

COMPETENCIES

1. Solve linear, surface and volume problems in traditional and metric systems.
2. Figure weight, distance and time problems.
3. Convert metric measurements to the traditional system and vice versa.
4. Use statistics to find mean, median, and mode.
5. Perform financial analysis of balance sheet and income statement.
6. Perform ratios on financial statements.

SPECIFIC PERFORMANCE OBJECTIVES AND MASTERY CRITERIA

1.1. The student will be able to use terms about linear or straight measure on a fill-in-the-blank quiz with 80 percent accuracy.

1.2. The student will be able to complete problems about linear measure on the unit test with 80 percent accuracy using a conversion chart for the more complex problems.

1.3. The student will be able to complete four problems involving linear measurements requiring either borrowing or carrying with 75 percent accuracy.

1.4. In class, the student will answer oral questions about surface measurement vocabulary.

1.5. The student will be able to complete an area problem on the unit test with 80 percent accuracy.

1.6. In class, the student will be able to answer oral questions about volume measurement vocabulary.

1.7. The student will be able to complete problems on the unit test to find volume with 70 percent accuracy.

2.1. The student will work problems that involve time (hours) as a class assignment.

2.2. The student with a Number of Days in a Year Chart or the calendar method will be able to determine the difference between due dates on given problems with 75 percent accuracy.

2.3. Given a list of 10 years, the student will be able to correctly show which of these years were leap years with 80 percent accuracy.

2.4. The student will be able to work distance and weight problems on the unit tests with 80 percent accuracy.

3.1. On the unit test the student will be able to list three ways the U. S. is converting to the metric system on the unit test with 70 percent accuracy.

3.2. The student will be able to match metric prefix terms on a matching quiz with 80 percent accuracy.

3.3. In class, the student will be able to convert linear measurement to another quantity within the metric system both with and without the use of a conversion chart.

3.4. In class, the student will be able to successfully complete three metric business problems that involve area.

3.5. The student will be able to convert quantities to other quantities within the metric system of volume measurement on a homework assignment.

3.6. The student will be able to work weight metric problems and convert from one quantity to other quantities within the system with 75 percent accuracy.

3.7. On the unit test with 75 percent accuracy, the student will be able to work metric problems of linear, volume, and weight; and with the aid of a conversion chart, will be able to convert to the traditional system.

4.1. On a quiz, the student will match statistical terms with their definitions and list three reasons for using statistics with 70 percent accuracy.

4.2. On the unit test, the student will be able to find the mean, median, and the mode on two problems with 75 percent accuracy.

5.1. In an in-class discussion, the student will be able to discuss the purpose and the use of the balance sheet.

5.2. Given a balance sheet, the student will be able to fill in the missing terms with 70 percent accuracy.

5.3. In class, the student will be able to find simple owner's equity using the bookkeeping equation.

5.4. On the unit test, the student will be able to use a simple comparative balance sheet and find the amount and percent of the difference between two time periods with 75 accuracy.

5.5. In class, the student will be able to explain the need and the use of the income statement.

5.6. Given monetary information about a school organization, the student will be able to prepare a simple income statement using the correct terminology.

5.7. The student will be able to perform a vertical analysis on an income statement with 80 percent accuracy.

5.8. The student will be able to use a comparative income statement and find the amount and percentage of difference between two time periods on the unit test with 80 percent accuracy.

6.1. On the unit test, the student will be able to use the balance sheet to find current and acid test ratios with 75 percent accuracy.

6.2. On the unit test, the student will be able to perform ratios on the income statement with 80 percent accuracy.

METHODOLOGY

This unit reviews and reinforces the student's skills in solving linear, surface, volume, time, weight, and distance measurement problems. In addition, a review of the metric system in linear, volume, and weight measurement and conversion to the traditional system is included.

New material that is introduced in this unit is the mean, median, mode, and financial analysis of the balance sheet and the income statement. All material in this unit includes business problems so the student can see the relationship between basic skills and business.

Textbooks, visual aids, teaching transparencies, business forms, and problems will be used in this unit. A pretest and a posttest are included in the appendix. The posttest is presented in sections and so may be given as a test at the conclusion of each unit or as one test at the end of the entire unit. The accuracy level of the specific objectives may be changed to fit the school standards or student ability. The metric section may be used as an optional unit.

SUGGESTED INTEREST APPROACHES

Some ideas for teaching this unit are listed and/or explained below.

Measurement problems:

1. Divide students into committees to do bulletin board displays on formulas.
2. Have students find examples in books or newspapers about practical application of formulas.
3. Have students list occupations or businesses that use the formulas in everyday businesses.
4. Have students write letters asking for different types of conversion charts.
5. Conduct oral drills or contests where students figure simple formula problems quickly.
6. Let students experiment with different containers to see for themselves how size can be misleading when trying to figure volume.
7. Let students use the chart on the Number of the Days of the Year to figure how many days they have been in school, until graduation, etc.

Metric problems:

1. Students can look up the history of the metric system in texts, or encyclopedia.
2. Students can find examples of metric system in everyday life.
3. If doing conversion problems between the traditional system and the metric system, keep the problems simple.
4. Have students learn to estimate measurement differences between the metric and traditional system. For example, 1 yard is about 1 meter, 1 quart is about 1 liter, etc.
5. Give a short quiz of prefix terminology.
6. Students can participate in a contest of who can convert the metric system the fastest.
7. Make a bulletin board display about the prefixes.
8. Conduct oral quizzes of moving decimal points when changing units of measure.
9. In some metric systems, commas are used as decimals, so a space is left between numbers instead of a comma. For example, 100 000.00 liters

Statistics measurement:

1. Research why the mean, median, and mode are used.
2. Figure class averages or individual averages from a test or an assignment using the mean, median, or mode.

Financial Analysis:

1. Do bulletin board displays for income statement or balance sheet.
2. Have a discussion of why these two financial statements are needed in business.
3. Further discuss the need for the ratio analysis and its purposes.
4. Discuss which businesses use the different types of ratio analyses.
5. Make a list of occupations that would require this skill to be included in the job description and what job skills or training are needed for these occupations. A guest speaker with a related occupation would be effective.

UNIT XI OUTLINE

BUSINESS MEASUREMENT, STATISTICS, AND REPORTS

I. Solve measurement problems

   A. Length
      1. Terminology
      2. Convert to units of measure
      3. Borrow or reduce units of measure
   B. Surface problems
      1. Terminology
      2. Area problems
   C. Volume measure
      1. Terminology
      2. Volume problems

II. Solve time, weight, and distance problems

   A. Time problems
      1. Hours
      2. Days
         a. Calendar method for due date
         b. Use of Number of Days in a Year Chart
   B. Weight and distance problems
      1. Freight charges
      2. Weight and zone charges

III. Metric System

   A. History and U.S. Conversion
   B. Metric prefixes
   C. Linear measurement
   D. Volume measurement
   E. Weight measurement
   F. Conversion from metric system to traditional system and vice versa

IV. Statistics

  A. Terminology and reasons for use
  B. Problems

V. Financial Analysis

  A. Read, analyze and interpret balance sheet
    1. Explanation and use of balance sheet
    2. Terminology
    3. Bookkeeping equation
    4. Comparative balance sheet
  B. Read, analyze and interpret income statement
    1. Explanation and use of income statement
    2. Terminology
    3. Vertical analysis of income statement
    4. Comparative income statement

VI. Ratio Analysis

  A. Balance sheet ratios
    1. Liquidity
    2. Other ratios
  B. Income statement ratio

SPECIFIC PERFORMANCE OBJECTIVES AND LEARNING ACTIVITIES

1.1. The student will be able to use terms about linear or straight measure on a fill-in-the-blank quiz with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology length yards inches miles	1. Review the instructor's presentation on terminology. 2. Take quiz as provided by teacher.

1.2. The student will be able to complete problems about linear measure on the unit test with 80 percent accuracy using a conversion chart for the more complex problems.

Subject Matter Content	Learning Activities
Use of conversion chart to change feet to miles, etc.	1. Follow along in text as teacher presents use of conversion chart.

Methods of converting feet to inches, yards, etc. without the use of the conversion chart	2. Review of conversion of basic values as presented by teacher. 3. Complete assigned worksheet as prepared by the instructor, with and without the conversion chart.

1.3. The student will be able to complete four problems involving linear measurements requiring either borrowing or carrying with 75 percent accuracy.

Subject Matter Content	Learning Activities
Borrowing or reducing units of measure Work from smallest unit of measure to largest	1. View transparency about borrowing and carrying (Appendix A, 1.3) 2. Complete four problems that involve borrowing or carrying as assigned by teacher.

1.4. In class, the student will be able to answer oral questions about surface measurement vocabulary.

Subject Matter Content	Learning Activities
Terminology width surface measure area square inches square feet square yards	1. View the instructor's presentation on the terms. 2. Read text on area and work sample problems. 3. Answer oral questions when called upon in the class.

1.5. The student will be able to complete an area problem on the unit test with 80 percent accuracy.

Subject Matter Content	Learning Activities
Area $A = L \times W$ Adding several odd-shaped areas together to find a total square footage Review reducing to lowest terms	1. View teacher's presentation on area and reviewing lowest terms 2. Complete problems as given by teacher. 3. Find the area of the classroom, window, desk top, etc.

4. Find the area of home kitchen, total square footage of house or apartment as an outside assignment.

1.6. In class, the student will be able to answer oral questions about volume measurement vocabulary.

Subject Matter Content

Terminology
  - volume
  - height or depth
  - cubic feet
  - cubic yards

Learning Activities

1. Find and record the meanings of the terms as found in the text.
2. Participate in hands-on experiment of volume by filling containers with water. Notice how misleading shape can be.
3. Look at the text conversion chart to see how cubic feet and yards are related.
4. Answer oral questions when called upon in class.

1.7. The student will be able to complete problems on the unit test to find volume with 70 percent accuracy.

Subject Matter Content

Volume
  - formula V = L x H x W

Review converting to lowest terms

Business application problems

Learning Activities

1. View the teacher's presentation on formula, review of lowest terms.
2. Complete problems, including business problems, as assigned by teacher.
3. Take section test covering objectives 1.1. through 1.7.

2.1. The student will work problems that involve time (hours) as a class assignment.

Subject Matter Content	Learning Activities
Elapsed time (hours) Add 12 hours after 1 p.m. to make subtraction easier Time zone changes	1. View transparency about subtraction and addition of time. (Appendix A, 2.1) 2. Review teacher's presentation about time zone changes in the United States and the world. 3. Locate time zones on map or globe. 4. Complete problems as assigned by instructor.

2.2. The student with a Number of Days in a Year Chart or the calendar method will be able to determine the difference between due dates on given problems with 75 percent accuracy.

Subject Matter Content	Learning Activities
Review due dates on notes using the calendar method Show how to use the Number of Day in the Year Chart	1. Review teacher's presentation of the calendar method. 2. View teacher's presentation of the use of the chart. 3. Use chart as teacher works sample problems. 4. Complete problems as assigned by instructor. 5. Use chart to determine how many days until the end of school, etc.

2.3. Given a list of 10 years, the student will be able to correctly show which of these years were leap years with 80 percent accuracy.

Subject Matter Content	Learning Activities
Leap years are divisible by 4 or if the year ends in 00, as in 2,000, the number must be divisible by 400	1. View the teacher's presentation on leap years. 2. Work problems about leap year as given by teacher.

2.4. The student will be able to work distance and weight problems on the unit tests with 80 percent accuracy.

Subject Matter Content	Learning Activities
Air transportation cost includes pickup and delivery to airport, air freight charges to a city of destination, local delivery from airport to destination and federal tax. Postal service Limitations on package size Classes of postal services Read zone and weight charts Motor freight, bus freight charts and charges	1. View teacher's presentation on air, zone, and weight charts, postal services, motor freight, bus charges, and UPS. 2. Record notes in notebook. 3. Find rates from different companies on bus, air, motor, and post office. 4. Participate in class discussion on the advantages of speed versus the cost of air freight. 5. Complete problems as assigned by the instructor. 6. Practice wrapping a package according to U.S. Postal recommendations. 7. Take section test covering sections 2.1 through 2.4.

3.1. On the unit test the student will be able to list three ways the U. S. is converting to the metric system with 70 percent accuracy.

Subject Matter Content	Learning Activities
History of the metric system Ways the U.S. is converting to the metric system	1. Read the history of the metric system in reference books 2. Locate newspaper articles about companies using metrics. 3. Read in the text about the metric system. 4. Find examples of metric system used in the grocery stores, on T.V., etc.

5. Participate in class discussion on the current use of the metric system in the U.S.

6. View film presentation.

3.2. The student will be able to match metric prefix terms on a matching quiz with 80 percent accuracy.

Subject Matter Content	Learning Activities
Terminology milli centi deci deca hecto kilo	1. View teacher's presentation of terms. 2. Define and record terms in notebook. 3. Match prefixes to correct measurement on a quiz. 4. Participate in oral quiz in class.

3.3. In class, the student will be able to convert linear measurement to another quantity within the metric system both with and without the use of a conversion chart.

Subject Matter Content	Learning Activities
Surface measurement in meters How to use a conversion chart within the metric system Measurement rounding	1. Follow in the text as the teacher explains how to use the metric surface measurement chart. 2. View the teacher's presentation on surface and linear metric measurement and on the use of metric conversion chart. 3. Complete assignment of problems as provided by teacher.

3.4. In class, the student will be able to successfully complete three metric business problems that involve area.

Subject Matter Content	Learning Activities
Area measurement as it applies to the metric system	1. In class, complete metric area problems.

3.5. The student will be able to convert quantities to other quantities within the metric system of volume measurement on a homework assignment.

Subject Matter Content	Learning Activities
Terminology of volume measurement liter milliliter centiliter deciliter hectoliter decaliter kiloliter Review of how to work volume problems Use of metric volume conversion chart Rounding	1. View the teacher's presentation on terminology, ways of rounding to the next level of metric system and use of a metric conversion chart. 2. Participate in a review of how to work volume problems. 3. Complete conversion problems as assigned by instructor.

3.6. The student will be able to work weight metric problems and convert from one quantity to other quantities within the system with 75 percent accuracy.

Subject Matter Content	Learning Activities
Cover gram terminology milligram centigram decigram decagram hectogram kilogram Use of conversion charts for weight Rounding to next metric unit Weight problems	1. View the teacher's presentation on the conversion charts within the weight system, gram terminology, rounding, and problems. 2. Complete problems, including business problems, as assigned by teacher.

3.7. On the unit test with 75 percent accuracy, the student will be able to work metric problems of linear, volume, and weight; and with the aid of a conversion chart, will be able to convert to the traditional system.

Subject Matter Content	Learning Activities
Review how to work linear, volume, and weight problems in metric Use of traditional and metric conversion chart	1. Review linear, volume, and weight metric problems from the text. 2. Follow in text as teacher shows how to use conversion chart for traditional and metric systems. 3. Work problems from metric to traditional system and vice versa as assigned by teacher. 4. Work metric problems in volume, weight, and linear measurement and convert to traditional method. 5. Take section test covering specific objectives 3.1 through 3.7.

4.1. On a quiz, the student will match statistical terms with their definitions and will list three reasons for using statistics with 70 percent accuracy.

Subject Matter Content	Learning Activities
Terminology data set primary set secondary set mean median weighted value mode average Use of statistics	1. Look up the terms in the text or reference book and write each term in a sentence in a notebook. 2. Match terms on quiz as prepared by instructor.

4.2. On the unit test, the student will be able to find the mean, median, and the mode of two problems with 75 percent accuracy.

Subject Matter Content

Mean
Median
Mode

Learning Activities

1. View teacher's presentation of mean, median, and mode.
2. Read text as assigned by teacher.
3. Complete worksheets as assigned by instructor.
4. Take section test covering objectives 4.1 through 4.2.

5.1. In an in-class discussion, the student will be able to discuss the purpose and the use of the balance sheet.

Subject Matter Content

Balance sheet
Purpose

Learning Activities

1. Find examples of balance sheets.
2. Research the purposes of the balance sheet.
3. Participate in a class discussion on the purposes of the balance sheet.

5.2. Given a balance sheet, the student will be able to fill in the missing terms with 70 percent accuracy.

Subject Matter Content

Terminology
  assets
  liabilities
  proprietorship
  capital
  equity
  financial report
  accounting formula
  current assets
  fixed assets
  current liabilities
  long-term liabilities

Learning Activities

1. Find the meanings of the terms and record definitions in notebook.
2. Fill in missing terms on balance sheet as instructed by teacher.
3. Differentiate between proprietorship, capital, and liabilities.
4. Differentiate between

current assets and fixed assets and current and long-term liabilities.

5. Work scramble puzzle. (Appendix A, 5.2)

5.3. In class, the student will be able to find simple owner's equity using the bookkeeping equation.

Subject Matter Content	Learning Activities
Bookkeeping Equation	1. Follow in text as instructor explains the bookkeeping equation.
	2. Complete simple owner's equity problems as assigned by instructor.

5.4. On the unit test, the student will be able to use a simple comparative balance sheet and find the amount and percent of the difference between two time periods with 75 percent accuracy.

Subject Matter Content	Learning Activities
Comparative balance sheet Amount of difference between two time periods The percentage of the differences between the time periods	1. View teacher's presentation of comparative balance sheet, how to complete a comparative balance, find the amount and percentage of time difference.
	2. Work problems as assigned by teacher.
	3. Take quiz as given by teacher.
	4. Take section test covering objectives 5.1 through 5.4.

5.5. In class, the student will be able to explain the need and the use of the income statement.

Subject Matter Content	Learning Activities
Income statement	1. Find sample income statements.

2. List reasons for the use of the of the income statement.

3. Participate in class discussion of the purpose of the income statement.

5.6. Given monetary information about a school organization, the student will be able to prepare a simple income statement using the correct terminology.

Subject Matter Content	Learning Activities
Terminology revenue income net income expenses net loss merchandising service cost of goods sold gross profit or margin	1. Find meanings of terms and record in notebook. 2. Write sentences with the words. 3. Fill in an income statement with correct terms. 4. Work a simple income statement for a hypothetical club.

5.7. The student will be able to perform a vertical analysis on an income statement with 80 percent accuracy.

Subject Matter Content	Learning Activities
Vertical analysis is the percentage of net sales to individual expenses or items.	1. View the instructor's presentation on how to do a vertical analysis of an income statement. 2. Work problems as assigned by instructor. 3. Work problems at chalkboard as called upon by teacher.

5.8. The student will be able to use a comparative income statement and find the amount and percentage of difference between two time periods on the unit test with 80 percent accuracy.

Subject Matter Content	Learning Activities
Basic comparative income statement Amount of difference between the two time periods Find the percentage of difference for two time periods	1. View the instructor's presentation on how to do a comparative income statement, to find the amount of difference and percentage of difference for two time periods. 2. Complete a comparative income statement as assigned by instructor. 3. Complete section test covering objectives 5.5 through 5.8.

6.1. On the unit test, the student will be able to use the balance sheet to find current and acid test ratios with 75 percent accuracy.

Subject Matter Content	Learning Activities
Ratios current acid-test	1. Read text on ratios. 2. View teacher's presentation on the ratios. 3. Complete ratios of problems as assigned by instructor. 4. Discuss what the ratics mean and how they can tell the financial status of a company.

6.2. On the unit test, the student will be able to perform ratios on the income statement with 80 percent accuracy.

Subject Matter Content	Learning Activities
Ratios Net income to net sales ratio Account receivables to net sales ratio Account payable to net purchases ratio	1. View teacher's presentation of different ratios. 2. Complete problems on ratios as assigned by the instructor. 3. Discuss the need of ratios to determine liquidity. 4. Use the Wall Street Journal or a newspaper for such ratios for income statements and figure ratios.

5. Take section test covering objectives 6.1 through 6.2.

APPENDIX A

TRANSPARENCY FOR 1.3

BORROWING AND CARRYING OF LENGTH MEASUREMENT

Borrowing is required when the top figure is smaller than the lower figure. For example:

3 feet 3 inches
- 1 foot 9 inches

Three inches is less than 9 inches. To solve this problem "borrow" 1 foot from the three feet and add the 12 inches to the three inches. Look at the next example:

2 feet 15 inches
- 1 foot 9 inches
1 foot 6 inches

Thus, the problem can now be solved.

Carrying: When two lengths are added together and the total is larger than the standard measurement, convert to the next higher measurement. For example:

3 yards 1 foot 9 inches
+ 1 yard 2 feet 10 inches
4 yards 3 feet 19 inches

Nineteen inches can be carried or converted to the next higher unit of measure. In this case, to 19 inches converts to 1 foot, 7 inches. Four feet converts to 1 yard, 1 foot.

5 yards 1 foot 7 inches

This is the same answer converted to the highest unit of measure.

Note: Work from the smallest unit of measure, like inches, to the larger unit of measure, like feet or yards.

APPENDIX A

TRANSPARENCY FOR 2.1

ELAPSED HOURLY TIME

To find how much time has elapsed between two periods, subtract one from the other. If necessary, as shown in the example, borrow units of time from the next higher quantity of measure.

Example:

$$\begin{array}{lll} & 3 \text{ hours} & 14 \text{ minutes} \\ - & \underline{1 \text{ hour}} & \underline{50 \text{ minutes}} \end{array}$$

Borrow 1 hour and add 60 minutes to the minutes column.

Now the problem will look like this:

$$\begin{array}{lll} & 2 \text{ hours} & 74 \text{ minutes} \\ - & \underline{1 \text{ hour}} & \underline{50 \text{ minutes}} \\ & 1 \text{ hour} & 24 \text{ minutes} \end{array}$$

Example: How much time has elapsed from 2:15 p.m. to 8 p.m.

Add 12 hours to 2:15 p.m.

$$\begin{array}{rr} 2{:}15 = & 14{:}15 \\ - & \underline{8{:}00} \\ & 6{:}15 \end{array}$$

The answer is 6 hours and 15 minutes

APPENDIX A

LEARNING ACTIVITY FOR 5.2

SCRAMBLED WORD PUZZLE

```
U A C A S S E T S C F E A O S Z U L S
I C M K A P R O P R I E T O R S H I P
N I E T R O R R I D X A S Z O A W A D
E S T R Q I G B L Q E S M R N R O B T
E C A P I T A L G S D T N D C S S I L
W A C C O U N T I N G A F C R T R L U
B Y F O R M U L A L S Q U B M N C I F
D S H F I N A N C I A L R E P O R T N
Q N S A E N C M T Q E R A D D M D I T
E P Y L V T E Q U I T Y Z V S L R E U
C U R R E N T A S S E T S E H M S S O
```

Find the following list of words in the scramble puzzle.

assets, liabilities, proprietorship, capital, equity, financial report, accounting, formula, current assets, and fixed assets

APPENDIX A

KEY TO LEARNING ACTIVITY 5.2

KEY TO SCRAMBLE PUZZLE

U	A	C	A	S	S	E	T	S	C	F	E	A	O	S	Z	U	L	S
P	C	M	K	A	P	R	O	P	R	I	E	T	O	R	S	H	I	P
N	I	E	T	R	O	R	R	I	D	X	A	S	Z	O	A	W	A	D
E	S	T	R	Q	I	G	B	L	Q	E	S	M	R	N	R	O	B	T
E	C	A	P	I	T	A	L	G	S	D	T	N	D	C	S	S	I	L
W	A	C	C	O	U	N	T	I	N	G	A	F	C	R	T	R	L	U
P	Y	F	O	R	M	U	L	A	L	S	Q	U	B	M	N	C	I	F
D	S	H	F	I	N	A	N	C	I	A	L	R	E	P	O	R	T	N
O	N	S	A	E	N	C	M	T	Q	E	R	A	D	D	M	D	I	T
C	P	Y	L	V	T	E	Q	U	I	T	Y	Z	V	S	L	R	E	U
C	U	R	R	E	N	T	A	S	S	E	T	S	E	H	M	S	S	O

APPENDIX B

UNIT XI PRETEST

I. Complete the following problems:

1. 1 foot 3 inches   2. 1 yard, 2 feet 1 inch
 - 9 inches   - 1 foot 11 inches

3. Convert 7 yards to feet_________

4. Convert 15 inches to feet__________

5. Find the area if the length is 7 feet and the width is 3 feet. ____________

6. Find the area if the length is 6 inches and the width is 1 inch.___________

7. Find the volume if the length is 3 inches, the width is 7 inches, and the height is 3 inches.____ __________

8. Find the volume if the length is 1 foot, the width is 6 feet and the height is 2 feet.____________

II. Find the difference between the time periods.

1. 9:00 a.m. to 11 a.m.________

2. 7:00 a.m. to 2 p.m.__________

3. If a promissory note is due in 40 days and the date of the loan is March 1, when is the due date?__________

III. Metrics:

1. Convert 1 liter to milliliters.______

2. Convert 100 centimeters to meters________

3. Find area (A = L x W) if the length is 3 centimeters and the width is 4 centimeters._________

IV. Find the average of the following:

7
10
15
21

APPENDIX B

PRETEST KEY

I. 1. 6 inches
   2. 1 yard, 2 inches
   3. 21 feet
   4. 1 1/4 feet
   5. 21 square feet
   6. 6 square inches
   7. 63 square inches 8. 12 square feet

II. 1. 2 hours
   2. 7 hours
   3. April 10

III. 1. 1,000 milliliters
   2. 1 meter
   3. 12 square centimeters

IV. 13

APPENDIX B

UNIT XI

POSTTEST

Section I: Measurement problems

1.	3 feet 2 inches	2.	9 yards 1 foot 5 inches
	- 1 foot 11 inches		- 3 yards 2 feet 9 inches

3.	5 feet 10 inches	4.	9 feet 3 inches
	+ 6 feet 9 inches		- 11 inches

5. Convert 9 miles to feet______________
6. Convert 5 yards to feet______________

Find the volume for the following problems:

	Length	x	Width	x	Height	=	Volume
7.	3		10		12		
8.	1		3		4		
9.	3		4		5		
10.	2		1		7		

All answers in problems 7 through 10 are in feet.

Find the area for the following problems:

	Length	x	Width	=	Area
11.	11 feet		12 feet	=	
12.	7 feet		3 feet	=	
13.	3 yards		10 feet	=	

Section II. Time, weight, and distance problems

Find elapsed time
1. 11:40 a.m. to 9:00 p.m.=
2. 7:30 p.m. to 11:41 p.m. =
3. 8:00 a.m. to 4:00 p.m. =
4. 1:00 a.m. to 2:00 p.m. =

Use the calendar method to find the due date
5. December 1 -- due date is 45 days ______
6. March 7 -- due date is 15 days_________
7. February 1 -- due date is 30 days______
8. December 16 -- due date is 60 days______
9. March 4 -- due date is 45 days________

	Zone		
Weight	1	2	3
under 1 lb.	1.00	1.20	1.30
under 1 1/2 lb.	1.40	1.50	1.60
under 2 lb.	1.70	1.80	1.90
under 2 1/2 lb.	2.00	2.10	2.20
under 3 lb.	2.30	2.40	2.50
under 3 1/2 lb.	2.60	2.70	2.80

Use the above chart to determine the cost of sending a package.

10. If a package weighs 3 lb. and is in zone 3. ______
11. If a package weighs 2 lb. 9 oz. and zone 1.______
12. If a package weighs 1 lb. and zone 2.______
13. If a package weights 2 lb. and zone 1.______

Section III. Metrics:

1. List three ways the U.S. is converting to the metric system.

a.
b.
c.

2. Convert 4 liters to milliliters.________
3. Convert 3.2 Kilograms to grams.________
4. Convert 7 centiliters to milliliters.________
5. 2 meters to centimeters.__________
6. Find the area if the length is 5 mm and width is 3 mm.___
7. If a soda can is 350 ml and comes in a six pack, find the total numbers of liters in the six pack.________
8. If a cheesecake weights 2.9 kilograms, how many 50 gram servings can be cut from the cake?_________

Section IV. Statistics:

Find the mean, median, and mode of the following.

1. 40, 21, 59, 70, 70, 43 =
mean_______ median________ mode_______
2. 170, 201, 43, 9, 516 =
mean______ median________ mode______

Complete the partial comparative balance sheet

Assets	1986	1987	amt. change	% change
3. Cash	300,000	100,000		
4. A/R	200,000	100,000		
5. Supplies	5,000	3,000		

Complete the partial comparative income statement

		3rd quarter	4th quarter	amt. change	% change
6.	Net Sales	100,000	90,000		
7.	Cost of Goods Sold	50,000	30,000		
8.	Gross Profit	50,000	60,000		
9.	Operating Exp.	25,000	30,000		
10.	Net Income	25,000	30,000		

Section V. Ratios:

Perform the following ratios

1. Net income to net sale ratio for the third and fourth quarter. Use the information from section IV, problem 7-11.

______________________ third quarter

______________________ fourth quarter

APPENDIX B

UNIT XI POSTTEST

ANSWER KEY

Section I. Measurement problems:
1. 1 foot 3 inches 2. 5 yards, 1 foot, 8 inches
3. 11 feet, 19 inches or 12 feet, 7 inches
4. 8 feet, 4 inches 5. 47, 520 feet 6. 15 feet

7. 360 cubic feet 8. 12 cubic feet 9. 60 cubic feet
10. 14 cubic feet 11. 132 square feet 12. 21 square feet
13. 270 square feet

Section II. Time, weight and distance problems:
1. 9 hours 20 minutes 2. 4 hours 11 minutes
3. 8 hours 4. 13 hours 5. January 15 6. March 22
7. March 2 8. February 15 9. April 18 10. $2.80
11. $2.30 12. $1.50 13. $1.70

Section III. Metrics:
1. a. manufacturing, b. food supplies, c. medicine
2. 4,000 ml. 3. 3,200 grams 4. 70 ml
5. 200 cm. 6. 15 square mm. 7. 2100 ml.
8. 58 servings

Section IV. Statistics
1. 50 mean, 51 median, 70 mode
2. 188 mean, 170 median, no mode
3. 200,000, 66 2/3%
4. 100,000, 50 5
5. 2,000, 40%
6. 10,000, 10%
7. 20,000, 40%
8. 10,000, 20%
9. 5,000, 20%
10. 5,000, 20%

Section V. Ratios
1. .4 to 1 for third quarter
2. .3 to 1 for fourth quarter

APPENDIX C

EVALUATION AND TESTING

Ways to Evaluate Pupil Growth:

1. Class participation
2. Homework
3. Quizzes
4. Unit tests
5. Short reports

EQUIPMENT AND SUPPLIES

Student:

1. Textbook/workbook
2. Notebook

Teacher:

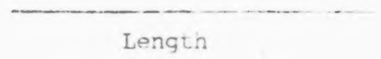
1. Textbook and Manual
2. Overhead Projector
3. Transparencies
4. Bulletin Board Supplies
5. Sample Problems
6. Worksheets
7. Business Forms
8. Conversion Charts
9. Handouts
10. Calculator

APPENDIX D

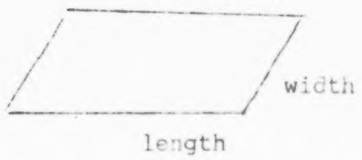
BULLETIN BOARD IDEAS

MEASUREMENTS

LINEAR MEASURE



SURFACE MEASUREMENT


width
length

Area = Length x Width

VOLUME MEASUREMENT

width
length
depth

Volume = Length x Width x Height (Depth)

APPENDIX D

BULLETIN BOARD IDEAS

METRIC PREFIXES

MILLI	.001 of base unit
CENTI	.01 of base unit
DECI	.1 of base unit
UNIT OF MEASURE (meter, liter, gram)	
DECA	10 of base unit
HECTO	100 of base unit
KILO	1,000 of base unit

APPENDIX D

BULLETIN BOARD IDEAS

SAMPLE OF A BALANCE SHEET

THE CLASS
BALANCE SHEET
ANYTIME

Assets		Liabilities		
Cash	$ 4,000	Account Payable	$ 1,500	
Inventory	15,000	Notes Payable	11,000	
Supplies	500			
		Total Liabilities		$12,500
		Owner's Equity		
		Capital		$ 7,000
Total Assets	$19,500	Total Liabilities and Owner's Equity		$19,500

APPENDIX E

SUPPLEMENTAL MATERIALS

Books

Dansby, Robert L., and Burton S. Kaliski. (1987). Business Mathematics. San Diego: Harcourt Brace Jovanovich, Publishers.

Fairbank, Roswell E., and Robert A. Schultheis. (1980). Mathematics for the Consumer. Cincinnati: South-Western Publishing Company.

Lange, Walter H., Robert D. Mason, and Temoleon G. Rousos. (1984). Business Mathematics. Boston: Houghton Mifflin Company.

Lanford, Francis G. (1981). Consumer Mathematics. Dallas: Allyn and Bacon, Inc.

Johnson, Thomas A., Carole Shepard Lissy, and James K. Seeck. (1985). Business Math Today. Dubuque, Iowa: William C. Brown Publishers.

Mason, Louis D. (1985). Applied Mathematics for Merchandising. New York: MPC Educational Publisher.

Salter, Jeffery. (1983). Practical Business Math Procedures Homewood, Illinois: Richard D. Irwin, Inc.

Tuttle, Michael D. (1987). Business Math. Dubuque, Iowa: William C. Brown Publishers.

Booklets/pamphlets

Metric Chart: SD Catalog No. C1320:304
U.S. Government Printing Office

Postage Rates, Fees and Information:
Available from the local Post Office

"A Concise Explanation of the Tax Reform Act of 1986," Prentice-Hall Information Services, Paramus, NJ 07652

Tax Information and pamphlets are available from:
Forms Distribution Center
P.O. Box 25866
Richard, VA 23260

Films/Filmstrips

"Metrics for Measure," (Catalog number 88)
"Dance Squared," (Catalog number X-159)
"The Dot and the Line," (Catalog number X-25 MGM)
Films and Recording Catalog, LSU Library, Baton Rouge, LA 70[illegible]

Periodicals

L.Fiber, (1975, March). Business Math in Transition. American Vocational Journal. pp. 40-42.

R. Kuttner. (1986, June). Tax Relief: Where Credit is Due. Business Week. p. 20.

The 500: The Fortune Directory of the Largest U.S. Industrial Corporations.: (1986, April 28). Fortune. pp. 182-202.

Corporate Scoreboard. (1986, May) Business Week. p. [illegible]

[illegible] Weiss. (1987, March 23). Reading Between the Lines of a Annual Report. Business Week.

Video Cassettes

"How Many? How Long? How Big? How Full? How Heavy?" from Adult Math-A Series.
"Keeping in Proportion" from Adult Math-A Series.
(3/4 or 1/2 inch video cassette, 30 minutes)
KY Educational Television, Network Center, 600 Cooper Drive, Lexington, KY 40502

"The Case of the Law of Averages" from the Counterplot Series,
"The Case of the Metric Muddle" from the Counterplot Series,
"The Case of the Pony Proportions" from the Counterplot Series,
"The Case of the Purposeful Polygon" from the Counterplot Series,
"The Case of the Star Formula" from the Counterplot Series,
"The Case of the Two-Faced Clock" from the Counterplot Series,
(3/4 or 1/2 inch video cassettes, 19 minutes)
Agency for Instructional Technology, Box A, Bloomington, IN 47402

"Averages" from Math Wise - A Series,
"Formulas" from Math Wise - A Series,
(3/4 or 1/2 inch video cassette or 16 mm film, 15 minutes)
KOCI-TV, Coase Community College District, P.O. Box 2476, Huntington Beach, CA 92647

"Ratios and Proportions" from Using Mathematics in the Plant - A Series,
"Using Formulas" from Using Mathematics in the Plant - A Series,
(3/4 or 1/2 inch video cassettes, 12 minutes)
TPC Training Systems, 1301 South Grove Ave., P.O. Box 1030,
Barrington, IL 60010

"Bookkeeping--Occupations and Opportunities,"
(3/4 or 1/2 inch video cassette, 15 minutes)
Phoenix/FBA Films and Video, Inc., 470 Park Avenue South, New York,
NY 10016

"Learning About Metric Measures,"
(3/4 or 1/2 inch video cassette, 16 minutes)
Phoenix/FBA Films and Video, Inc., 470 Park Avenue South, New York,
NY 10016

"Proportion at Work,"
(3/4 or 1/2 inch video cassette or 16 mm film, 12 minutes)
International Film Bureau, 332 S. Michigan Avenue, Chicago, IL 60604

ANNOTATED BIBLIOGRAPHY

OF

BUSINESS MATH INSTRUCTIONAL RESOURCES

ALLYN AND BACON, INC.
7 Wells Avenue
Newton, Massachusetts 02159

Business Mathematics, Karl J. Smith, 1984.

Annotation: This text is divided into three parts. Part I provides fundamental math skills needed for business. Part II covers business application, which includes retailing (discounts, invoices, markups), payroll, and financial analysis (averages, graphs, profit and loss statement, balance sheet). Part III is concerned with business finance, such as interest, money management, notes, taxes, depreciation, loans, credit, and insúrance. In addition to the standard topics, material is also provided on purchasing a home and an automobile, credit card purchases, inflation, and flexible coverage of the calculator.

Format: Text, soft cover, 562 pp.;
Annotated Teacher's Edition;
Instructor's Manual and Test Items;
Sportset Supplement.

WM. C. BROWN PUBLISHERS
P. O. Box 539 - 2460 Kerper Blvd.
Dubuque, Iowa 52004-0539 (319) 588-1451

Business Math Today, Thomas A. Johnson, Carole Shepard Lissy, and James K. Seeck, 1985.

Annotation: This text assumes no business math prerequisites. The first section provides a review of basic math and covers the use of the calculator. The authors have concentrated on covering contemporary business topics, and they reflect current economic conditions. These topics include checking account reconciliation, payroll, borrowing money, discounting notes, basic statistics, sources of capital, financial statements, inventory valuation, ratio analysis, depreciation methods, retailing math, and consumer credit. The text includes pretest, objectives, definitions, step by step examples, current tables and charts, and business forms. The instructor's edition includes overhead transparency masters, test bank, and final exam for each chapter.

Format: Text, soft cover, 401 pp.;
Instructor's Edition.

Office Machines: A Practical Approach, Second Edition, [illegible] and Robert J. Hughes, 1983.

Annotation: This text and the accompanying simulation/practice set is for office machines and business math students. The text is designed to teach the touch method of keyboarding on a ten-key office machine to perform basic math functions in solving typical business problems.

Format: Text, spiral bound soft cover, 330 pp.;
Woodside Apartments, An Office Simulation/Practice Set, Robert J. Hughes, 1983, 151 pp.;
Instructor's Manual to text and simulation set.

Practical Business Math: A Performance Approach, Fourth Edition, Michael D. Tuttle, 1987.

Annotation: This text-workbook uses a performance approach, applying math principles to business problems. The first section provides a review of fundamental math skills. The remaining sections use business application to cover the following topics: banking records, payroll, measurements, simple interest to installment loans, markup, commission sales, discounts, inventory, depreciation, taxes, investments, financial statement analysis, statistics, and charts and graphs. The appendixes offer mini-calculator selection and operation, math shortcuts, math of computers, employment math text, and reading stock market quotations. Instructor's edition provides a flowchart of chapter interdependencies, transparency masters, tests, and a business employment test.

Format: Text-workbook, soft cover, 543 pp.;
Instructor's Edition.

Essentials of Business Mathematics, James H. Reed and Walter E. Williams, 1984.

Annotation: In a workbook format, this text presents fundamental math concepts used in business. The first section is a review of basic arithmetic. The remainder of the text covers business math as it relates to bank statement reconciliation, retailing applications of percent, payrolls and taxes, simple and compound interest, annuities, consumer credit, insurance, accounting, investments, business statistics, and the metric system. The instructor's manual contains answer sheets, diagnostic tests, chapter tests, and transparency masters.

Format: Workbook, spiral bound soft cover, 248 pp.;
Instructor's Manual.

Fundamentals of Business Mathematics, Third Edition, Walter E. Williams and James H. Reed, 1984.

Annotation: This text develops business math skills for application in retailing, accounting, and finance. The first part of this text covers basic math as it relates to business, such as a review of arithmetic and fractions, equations and formulas, percent, and graphs. Part Two through Part Four present the following topics: retailing math, payroll, banking, accounting, taxes, simple and compound interest, simple discount, compound interest, consumer credit, annuities, sinking funds, amortization, securities, insurance, statistics, the metric system, and the binary system. Student workbook is designed to be used in conjunction with text. Instructor's manual contains diagnostic tests, use of calculators, and overhead transparency masters.

Format: Text, hard cover, 617 pp.;
Student Workbook, spiral bound soft cover, 254 pp.;
Instructor's Manual.

DELMAR PUBLISHERS INC.
2 Computer Drive, West
Box 15015 Albany, New York 12212-5015 (800) 833-3350

Merchandising Mathematics, Patrick A. Carlo and Dennis H. Murphy, 1981.

Annotation: This text-workbook is designed to apply mathematical concepts on practical problems in the areas of distribution, retailing, merchandising, and selling. A Pre-employment Test is presented. A review of fundamental math is presented in a functional approach where the basic math skills are applied to actual merchandising problems.

Format: Text-workbook, soft cover, 179 pp.;
Instructor's Guide.

Business Mathematics, William M. Dillon, 1985.

Annotation: A review of fundamental math skills is conducted in the first section of this text-workbook. This review is done in connection with a variety of business forms and problems. The rest of the text deals with business topics that involve application of math skills. These topics include finding base, rate, and portions; trade and cash discounts; retail merchandising; simple interest, discounting notes, compound interest; consumer credit; payroll; taxes; stocks and bonds; depreciation and distribution of overhead; and statistics. Appendix includes steps for using an electronic calculator.

Format: Text, spiral bound soft cover, 320 pp; Business Mathematics Simulation: A Case Problem, soft cover, 127 pp.; Business Mathematics: Computerized Drill and Practice, the 12 units match the 12 chapters in text, diskette, (IBM-PC); Business Mathematics: Computerized Tests, diskette with 240 review questions which instructors can revise (IBM-PC), free with adoption of text; Instructor's Guide/Test, soft cover.

Mathematics for Business, Harry Lewis, 1983.

Annotation: The content of this text covers fundamental operations and percent, earnings, purchasing, merchandising, interest, borrowing money, investments, accounting practices, and financial reports. The appendix covers the use of the electronic calculator. Instructor's guide contains only answers to the text exercises and tests with answer keys.

Format: Text, hard cover, 503 pp.; Instructor's Guide.

Applied General Mathematics, Robert Smith, 1982.

Annotation: Basic math skills that are encountered in almost all career fields are covered in this text. Divided into five sections, the text covers the following fundamental skills: whole numbers, common fractions, decimal fractions, percentage, statistical measures, and graphs, and measure. Practical problems include an explanation of a given career as well as directly involving the student in the subject matter.

Format: Text, hard cover, 349 pp.; Instructor's Guide and Test Booklet.

GLENCOE PUBLISHING COMPANY
17337 Ventura Blvd.
Encino, California 91316 (800) 423-9534

Consumer Mathematics, Second Edition, Linda L. Thompson and Ross E. Lowe, 1986.

Annotation: The first three chapters of this text provide a review of simple computational skills commonly used to solve consumer problems. The remaining chapters deal with the following topics: income, money management, buying consumer goods and services, borrowing money, investments, health care, transportation and travel, and housing. The appendixes cover using a calculator, computer flowchart, and units of measurement.

Format: Text, hard cover, 472 pp.;
Workbook, soft cover, 139 pp.;
Teacher's Annotated Edition, hard cover;
Test Booklet;
Practice Set.

HARCOURT BRACE JOVANOVICH, INC.
1250 Sixth Avenue
San Diego, California 92101

Business Mathematics, Fourth Edition, Burton S. Kaliski and Robert L. Dansby. 1987.

Annotation: The standard business math topics are covered in this text along with special current interest, such as IRA, charge accounts, home mortgages, and NOW accounts. The income statement is used as a focal point around which the text has been organized. The business application is related closely to the tax laws of our country. Annual updates in changes in the law are provided to the users of this text. Unit 1 thoroughly reviews fundamental arithmetic skills with business applications, such as bank reconciliation and finding base, rate, and percentage. The unit on mathematics of trading deals with buying, pricing and selling, and inventories. The operating mathematics unit covers payroll, insurance, depreciation, other expenses, and business profits. Unit 4 on finance includes simple interest and bank discount, accumulation of funds, and consumer credit. Corporation stocks, bonds and other investments are included in unit 5. The last unit deals with summary techniques and analytical procedures. Operating a pocket calculator in covered in the appendix. Answer key included.

Format: Text, hard cover, 400 pp.

HOUGHTON MIFFLIN
One Beacon St.
Boston, Massachusetts 02108 (617) 725-5802

Business Mathematics, Second Edition, Walter H. Lange, Robert D. Mason, and Temoleon G. Rousos, 1986.

Annotation: This multifaceted text focuses on the review, remediation, and reinforcement of basic math skills. The logical problem-solving feature, the computer activities, and mini-simulations add realism. Part I employs the use of 14 workshops to review fundamental math skills. Personal business math is covered in 11 units in Part II, which includes the following topics: gross and net income, checking and savings accounts, cash purchases, charge accounts and credit cards, loans, the cost of owning and operating an automobile, housing costs, insurance and investments, and budgets. In Part III, business math 11 units are used to represent different departments of a large business, which include personnel, production, purchasing, sales, marketing, warehousing and distribution, services, accounting, accounting records, financial, and information management. The Reference File, in the appendix, provides helpful information to students: 32 computational skills, 26 math applications, and terminology.

Format: Text, hard cover, 594 pp.;
Teacher's Edition, hard cover;
Solution Key, soft cover, 163 pp.;
Teacher's Resource Book, soft cover, 103 pp.;
Problems and Simulations;
Teacher's Edition of Problems and Simulations;
Microcomputer Applications:
    Apple 11, 11 plus, 11c, 11e diskette;
    TRS-80 Models 111, 4 diskettes;
    IBM PC diskette.

RICHARD D. IRWIN, INC.
1818 Ridge Road
Homewood, Illinois 60403 (800) 323-4560

Practical Business Math Procedures, Second Edition, Jeffrey Slater, 1987.

Annotation: The total package offers a variety of innovative features designed to help instructors meet the varied learning needs of students. Audio cassette tapes, crossword puzzles, reproducible tables, transparencies, computer software, computerized test banks, and a special fold-out newspaper are available. Realistic business applications are distributed throughout each of the 21 chapters. The first 3 chapters cover fundamental math skills and the remaining 18 chapters contain the following topics: banking, formulas, percents, trade and cash discounts, markups and markdowns, payroll, interest, notes, installment buying, financial analysis, depreciation, inventory and overhead, sales, excise taxes, insurance, stocks and bonds, mortgages and amortization, annuities, and sinking funds. The appendixes provide additional word problems, an overview of the metric system, basic business statistics with computer application, and glossary.

Format: Text, soft cover, 440 pp.;
Teacher's Edition;
Instructor's Resource Manual;
Test Bank;
The Electronic Calculator Supplement;
Audio Cassette Tapes to review chapters and mini-quizzes;
Overhead Transparencies;
Computer software.

MPC EDUCATIONAL PUBLISHERS
(a division of John Wiley & Sons, Inc.)
3839 White Plains Road
Bronx, New York 10467-5394 (800) 223-8055

Applied Mathematics for Merchandising, Louis D. Mason, 1985

Annotation: This textbook is designed to provide students with a complete understanding of merchandising mathematics using the language of merchandising. Part I is a review of basic arithmetic concepts as they apply to business and distributive education. The second part deals with the math skills essential to careers in retailing and distribution. Topics covered in Part II include the planning and computation of price determination and markups/markdowns, planning purchases and sales, discounts and invoice math, retail profit, and inventory control and valuation.

Format: Text, soft cover, 160 pp.;
Teacher's Answer Key.

CHARLES E. MERRILL PUBLISHING COMPANY
A Bell & Howell Company
1300 Alum Creek Drive
Box 508
Columbus, Ohio 43216

Business Mathematics, Jerry Funk, 1985.

Annotation: This text-workbook covers the fundamental mathematics needed in all areas of business. The workbook problems are presented in two degrees of difficulty. The first unit provides for a review of arithmetic, fractions, and solving for the unknown. The remaining six units contain the following topics: percentage, payroll, interest, merchandise discounts and markups, depreciation, inventory, banking, statistics, graphs, metric system, statement analysis, insurance, taxes, stocks, and bonds. A mini practice set is included.

Format: Text-workbook, soft cover, 636 pp.

GREGG/MCGRAW-HILL
1221 Avenue of the Americas
New York, New York 10020

Programmed Business Mathematics, Fifth Edition, Harry Huffman, 1986.

Annotation: This series of three text-workbooks is designed to be used in a variety of settings including the traditional classroom setting or for individualized instruction.

Book 1, Business Mathematics Fundamentals, emphasizes a review of basic math skills with business application. Topics contained in Book 1 are whole number operations, fractions, decimals, percents, ratios and proportions, and equations and formulas. Business applications include sales slips, sales taxes, banking, property taxes, money management, and electronic calculators.

Book 2, Negotiable Instruments, Pricing, Discount, Payroll, Insurance, and Business Decision Making, introduces the mathematics of finance, marketing, payroll, and cash flow.

Book 3, Business Ownership, Depreciation, Compound Interest, Investment, and Statistics, emphasizes the mathematics of ownership.

Format: Text-workbooks, soft cover, Book 1, 192 pp.; Book 2, 224 pp.; Book 3, 200 pp.;
Separate Tests for each book;
Separate Instructor's Manual and Key for each book.

Mathematics for Business Decisions, David Peterson, 1983.

Annotation: The chapters in this text are arranged in a sequence which parallels the order in which a person might encounter math in a real business. A brief review of basic math skill is provided at the end of the text. Topics include accuracy, business decisions, payroll, banking, loans, purchasing, merchandising, insurance, taxes, investments, financial analysis, inventory, and measurements.

Format: Textbook, spiral bound, soft cover, 312 pp;
Instructor's manual and key.

Business Mathematics, Ninth Edition, R. Robert Rosenberg, Harry Lewis, and Roy W. Poe, 1982.

Annotation: The text is divided into three parts: basic math skills for beginning jobs, math on the job, and math off the job. Typical business math topics are covered such as payroll, banking, merchandising, inventory, shipping, financial statements, purchasing, insurance, credit, and investments.

Format: Text, hard cover, 560 pp.;
Teacher's Edition;
Workbook;
Teacher's Manual and Key (includes tests).

Basic Mathematics, Skills and Applications, Merle Wood, Thomas Hendricks, and Susan Muller, 1983.

Annotation: This text addresses the needs of students for job entry-level math skills and further education. Basic mathematics is emphasized throughout the text with business application. The text is organized into 25 chapters with each covering one math skill area. The text is designed to be used for group instruction or individualized instruction.

Format:
Text, hard cover, 592 pp.;
Learning Guide;
Skills Test;
Instructor's Manual and Key.

SOUTH-WESTERN PUBLISHING COMPANY
2105 McDaniel Drive
Carrollton, Texas 75006
(800) 441-0614

Applied Business Mathematics, Twelfth Edition, Roswell E. Fairbank, Robert A. Schultheis, and Raymond M. Kaczmarski, 1985.

Annotation: Throughout this text, arithmetic skills are used to solve a variety of business problems. Although most of the problems are business applications, personal applications are used frequently to make the material more meaningful to the student. Because the subject matter for this book is organized in an orderly, progressive development of principles and processes, the sections and units must be presented in the exact order in which they are given in the text. The four units provide a comprehensive review of fundamental math skills. Topics include money records, payroll, the metric system, loans, credit cards, savings, investing, insurance, home expenses, transportation, taxes, financial statements, graphs, merchandising, discounts, sales, invoices, notes, costs, partnership, computer math, probability, and calculators.

Format:
Text, hard cover, 595;
Teacher's Edition;
Problems and Drills, soft cover, 190 pp.;
Teacher's Edition of Problems and Drills;
Tests 1-7, Final Examination;
Solutions (Key to text, achievement tests, pretests, and review tests).

Consumer Math, Roswell E. Fairbank and Robert A. Schultheis, 1983.

Annotation: This one-semester textbook is designed to develop skills needed to solve consumer math problems. Fundamental math skills are reviewed in the first units with application to typical consumer problems.

The text is organized into five parts which are divided into 19 units. The five major topics are earning money, spending money, saving and investing money, borrowing money, and understanding business operations.

Format: Text, hard cover, 389;
Teacher's Edition;
Problems and Drills, soft cover, 126 pp.;
Teacher's Edition of Problems and Drills;
Test Package;
Solutions, Textbook/Achievement Tests.
Student Check Sheet (free to users).

Mathematics for the Consumer, Third Edition, Roswell E. Fairbank and Robert A. Schultheis, 1980.

Annotation: The eleven units in this text are designed for a one semester course. Fundamental math operations are interwoven with consumer problems. Review assignments are presented at the end of each section. The subject matter is organized into related topics, which are money records, the metric system, purchasing, wages, commissions, borrowing money, saving and investing, home expenses, transportation, and taxes.

Format: Text, hard cover, 388 pp.;
Teacher's Edition;
Problems and Drills;
Tests 1-5;
Student Check Sheet (free to users).

Occupational Mathematics, Gerald E. Gannon and Willard R. Daggett, 1986.

Annotation: A wide variety of occupations and life situations are used to help students understand how math is directly related to occupational and consumer situations. Warm-up exercises in basic math are provided at the beginning of each of the 15 units. The unit topics are speaking and using math, communicating with math, your income, your paycheck, math in your everyday life, math for leisure, math and your future, math and money, math and your body, math and machines, math for making things, math of supply, math indoors, math outdoors, and computer operations.

Format: Text, hard cover, 463 pp.;
Teacher's Manual, soft cover;
Student Supplement (workbook), soft cover, 171 pp.;
Test Bank.

Vocational Mathematics for Business, Third Edition, Marie Martinka and James L. Southam, 1984.

Annotation: This text-workbook has two basic units: (1) fundamental math principles and rules with practical applications, and (2) the use of these principles for common business problems. Prerequisite skills require only a background knowledge in addition, subtraction, multiplication, and division of whole numbers. The six chapters in Unit I cover decimals, fractions, equivalents, percents, weights and measures, and shortcuts. Unit II contains the following topics: checking accounts, interest, cash and trade discounts, selling, payroll, time payments, loans, inventory, cost, depreciation, charts and graphs, and number-coding systems.

Format: Text-workbook, soft cover, 394 pp.;
Teacher's Manual;
Achievement Test, 1-4 and final examination.

Learning Basic Math and Business Math Using the Calculator, Barbara F. Muncaster and Susan L. Prescott, 1985.

Annotation: This text-workbook is designed to let students learn basic math and business math while obtaining calculator proficiency. The first ten units concentrate on basic math operations. The last 12 units cover a variety of business application problems. The topics contained in these units are discounts, banking, payroll, pricing, depreciation, credit, ratio and proportion, and investments. Simulation activities are employed to further develop students' math skills.

Format: Text-workbook, spiral bound soft cover, 330 pp.;
Teacher's Edition;
Test.

Marketing Math, Second Edition, William A. Stull, 1985.

Annotation: The purpose of this text is to help students master the necessary math competencies for marketing occupations. The math used in marketing is presented in a logical sequence, from the time merchandise is ordered and received until it is sold. This self-contained text allows students to work individually or in a group. A basic math skill review is presented in the first section. The remaining five sections cover the following topics: ordering, receiving, and recording merchandise; pricing; handling daily cash procedures; inventory; and determining income and loss. The use of the calculator is presented but is not recommended for the first section.

Format: Text-workbook, soft cover, 196 pp.;
Teacher's Edition.

SCIENCE RESEARCH ASSOCIATES, INC. (SRA)
College and Vocational Studies Division
155 North Wacker Drive
Chicago, Illinois 60606 (800) 621-0476

Practical Business Mathematics, Lloyd D. Brooks, 1984.

Annotation: The 38 chapters, which form the 9 units of this vocational-oriented text, are designed to be independent of each other in order to give flexibility to the course. It discusses the "why" of math operations and includes explanations, examples, and business problems. A review of basic math functions is presented in the first four units. The remaining units cover business math principles, such as marketing math, accounting and financial math, business finance, statistics, graphs, stocks, and bonds, and the metric system. The math problems are designed for solution on a ten-key calculator. The self-directed approach of this text allows students to progress at an individualized pace, selecting those skills that need to be strengthened.

Format: Text, soft cover, 464 pp.;
Teacher's Edition;
Resource Manual.